

Supporting Information for:

Evaluating Indoor Air Chemical Diversity, Indoor-to-Outdoor Emissions, and Surface Reservoirs Using High-Resolution Mass Spectrometry

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S1. Sample collection

Unoccupied home (St. Louis) sample collection

The St. Louis home was built in 1918, and has wood construction, vinyl exterior, hardwood flooring, and a mostly painted drywall interior. These materials are all available to contribute emissions to the surrounding indoor space. This residence lies in the St. Louis suburbs: 0.5 km south of a state route (100), 1.25 km west of an interstate freeway (I44), and 2.15 km south of an additional interstate freeway (I64). The state route has a high density of stores, restaurants, and other commercial businesses, some of which may contribute major wood burning and cooking tracers. The prevailing wind in St. Louis comes from a WNW direction. The residence was unoccupied for a few weeks prior to sample collection.

The main goals of the overall study were to speciate the mixtures of indoor gas- and particle-phase organic compound and observe changes in concentrations and indoor-to-outdoor emissions upon the opening and closing of windows in an unoccupied home without the presence of people and the emissions or chemistry associated with their activities. As part of the larger set of perturbation experiments that are not a part of the measurements in this manuscript, the open small dish of pine-sol and introduction of seed aerosol on the last day of adsorbent tube and filter sampling (Figure 4) was partly intended to observe the effect of elevated terpenoids and seed particle concentrations indoors with the intrusion of outdoor air, though the impact on pinene concentrations was minor compared to the high background levels in the home. Thus, the pine-sol itself was not a core part of the analysis here and the discussion of the results focuses on the effects of ventilation and aerosols.

Online analytical instrumentation, including an aerosol mass spectrometer (AMS), scanning mobility particle sizer (SMPS), and thermal desorption aerosol gas chromatograph (TAG) were

contained in an instrument trailer located just outside the kitchen. Adsorbent tubes and filters were collected inside the home in the samplers described by Sheu et al.¹ and were both spiked with deuterated internal standards (1 μL and 5 μL, respectively) after sampling to monitor transport, storage, and desorption/extraction losses. Sample-to-sample differences were accounted for but were fairly minimal. Two blanks (one installed in the sampler and one not) were collected for both adsorbent tubes and filters. All tubes and filters were stored at -35°C after collection and shipping.

Other Sites

The movie theater has been described at length in Sheu et al.² For the third site, tube and filter samples were collected at a commercial workplace in southern Connecticut. At each building location sampled, four tubes and two filters were simultaneously collected at four different locations. One location was the intake of an AC unit, and the other was a downstream room serviced by that AC unit. Samples were specifically collected in a museum collection storage room, a hallway near a biological lab, inside a laboratory, in a conference room, and in an office.

S2. Data processing (GC-EIMS)

Sample chromatograms from GC-EIMS were examined on characteristic extracted ion chromatograms (EICs) for analyte peaks using a combination of Chromatogram Deconvolution in Agilent's MassHunter Qualitative Analysis software and human identification. Peaks were identified using standards or the NIST database for MS spectra, confirmed against GC retention indices. Once a library of the 369 observed compounds, ranging in carbon number from C₃ to C₂₅, was compiled, the peak abundances were quantified on a unique EIC in Quantitative Analysis for each sample using a retention time window of 0.15 minutes. Because of retention time shifting during the analysis, separate retention time lists were generated for each of the

samples based on the retention times of the n-alkanes. Day-to-day runs of the fatty acid methyl ester standard during analysis ensured minimal instrument drift during the analysis.

The peaks were manually verified and their areas were imported into Microsoft Excel for further processing. They were first adjusted by the peak areas of the compounds in the deuterated standard, and sample peak areas were blank subtracted to remove background contamination. All peak areas were divided by the sample volume to determine abundance per L (2 or 4 hours per sample depending on study design). Because they were introduced manually for the purposes of the experiment, tracers hexafluorobenzene (HFB) and octafluorotoluene (OFT) and 1-butanol (used in the CPC) were excluded.

S2A. Indoor/Outdoor ratios and effective emission rates determined using GC-EIMS data

Indoor/outdoor ratios based on the GC-EIMS data were calculated by taking the geometric mean of the indoor peak area abundances over the corresponding outdoor abundances.

$$\frac{I}{O} = \frac{\sqrt[n]{\prod_i^n Abund_{i,indoor}}}{\sqrt[m]{\prod_i^m Abund_{i,outdoor}}} \quad [S1]$$

Where “Abund” refers to the volume-normalized abundance.

The geometric mean of these I/O ratios were calculated for each functional group. For the purposes of Figure 1E, compounds with more than one functional group were counted in each corresponding group. Exceptions include glycol ethers and phthalates, which were not included under ethers/alcohols and esters, respectively.

Functional Group	I/O Ratio
Alkanes	15.7
Alkenes	43.3
Terpenes	28.9
Cycloalkanes	18.6
Aromatics	17.3
PAHs	9.8
Ethers	14.4
Alcohols	29.1
Carbonyls	14.2
Acids	32.6
Esters	45.0
Furanoids	29.7
Glycol Ethers	97.7
Phthalates	31.8
Siloxanes	21.3
Halogenated	72.7
Tracers	275.5

$\frac{(I/O)_{open}}{(I/O)_{closed}}$ (i.e. the indoor/outdoor ratio in open vs. closed conditions) were calculated using simultaneously sampled indoor and outdoor samples. This calculation yielded four pairs of closed window samples ($N = 4$) and three pairs of open window samples ($N = 3$). The geometric mean was once again used to calculate $\frac{(I/O)_{open}}{(I/O)_{closed}}$.

$$\frac{(I/O)_{open}}{(I/O)_{closed}} = \frac{GM\left(\frac{Abund_{i,indooropen}}{Abund_{i,outdooropen}}\right)}{GM\left(\frac{Abund_{i,indoorclosed}}{Abund_{i,outdoorclosed}}\right)} \quad [S2]$$

The calculation of I_{open}/I_{closed} was carried out using a similar calculation.

$$\frac{I_{open}}{I_{closed}} = \frac{\sqrt[n]{\prod_i^n Abund_{i,open}}}{\sqrt[m]{\prod_i^m Abund_{i,closed}}} \quad [S3]$$

As in Fortenberry et al.,³ $\frac{(I/O)_{open}}{(I/O)_{closed}}$ and $\frac{I_{open}}{I_{closed}}$ were also examined with normalization by the tracer compounds hexafluorobenzene (HFB) and octafluorotoluene (OFT). These were calculated by directly dividing the target ratio for a compound by the same ratio for HFB and OFT (averaged).

$$\left(\frac{I_{open}}{I_{closed}}\right)_{i,norm} = \frac{\frac{I_{i,open}}{I_{i,closed}}}{\frac{I_{tracer,open}}{I_{tracer,closed}}} \quad [S4]$$

The metric $\left(\frac{I_{open}}{I_{closed}}\right)_{i,norm}$ can also be used to examine the differences in indoor sources (i.e. cumulative emissions from all reservoirs) of each compound I relative to the tracers between the open and closed window conditions. Using a simple box model on a compound i and the tracer t , we know the following.

$$\frac{dc_i}{dt} = \frac{E_i - D_i}{V} + (c_{i,outdoor} - c_{i,indoor}) * AER = 0 \text{ (at quasi steady state)} \quad [S5]$$

dc_i/dt : Change in concentration over time [ppb/s]

E_i & D_i : Mass emission & deposition rate [mg/s]

V : Volume of indoor environment [420 m³]

$c_{i,outdoor}$ & $c_{i,indoor}$: Concentration of compound i outdoors and indoors, respectively [ppb]

AER : Air exchange rate [hr⁻¹]

This can be rearranged.

$$c_{i,indoor} = \frac{E_i - D_i}{Q} + c_{i,outdoor} \quad [S6]$$

Where the Air supply rate: $Q = V * AER$ [m³ hr⁻¹]

Assuming $c_{\text{outdoor}} \ll c_{\text{indoor}}$ (i.e. Figure 1),

$$c_{i,\text{indoor}} \approx \frac{E_i - D_i}{Q} \quad [S7]$$

Therefore,

$$\left(\frac{I_{\text{open}}}{I_{\text{closed}}}\right)_{\text{norm}} = \frac{\left(\frac{c_{i,\text{open}}}{c_{i,\text{closed}}}\right)}{\left(\frac{c_{t,\text{open}}}{c_{t,\text{closed}}}\right)} = \frac{\left(\frac{E_i - D_i}{E_t - D_t}\right)_{\text{open}}}{\left(\frac{E_i - D_i}{E_t - D_t}\right)_{\text{closed}}} \quad [S8]$$

We can assume the rate of tracer emissions (E_i) from the gas cylinder to be equal across ventilation conditions, by experimental design. Also, we assume $D_{\text{tracer}} \sim 0$, since HFB and OFT are quite volatile as well as highly fluorinated. So, the ratio simplifies further:

$$\left(\frac{I_{\text{open}}}{I_{\text{closed}}}\right)_{\text{norm}} = \frac{\left(\frac{E_i - D_i}{E_t - D_t}\right)_{\text{open}}}{\left(\frac{E_i - D_i}{E_t - D_t}\right)_{\text{closed}}} = \frac{(E_i - D_i)_{\text{open}}}{(E_i - D_i)_{\text{closed}}} \quad [S9]$$

$(E_i - D_i)$ can then be represented as the effective emission rate ($E_{i,\text{eff}}$) and the ratio reduces to:

$$\left(\frac{I_{\text{open}}}{I_{\text{closed}}}\right)_{\text{norm}} = \frac{\left(\frac{c_{i,\text{open}}}{c_{i,\text{closed}}}\right)}{\left(\frac{c_{t,\text{open}}}{c_{t,\text{closed}}}\right)} \approx \frac{(E_{i,\text{eff}})_{\text{open}}}{(E_{i,\text{eff}})_{\text{closed}}} \quad [S10]$$

The tracer normalization improves upon a simple $\frac{I_{open}}{I_{closed}}$ ratio because it corrects for variation by ventilation for gas-phase organic compounds by using compounds that are quite volatile and will experience minimal surface interaction. The assumptions made ($E_{t,open} = E_{t,closed}$ and $D_t \sim 0$) imply that the tracer behavior will be consistent regardless of ventilation.

These emission rates from surfaces and other indoor reservoirs were calculated using a simple box model that accounts for ventilation and emissions from surfaces. Though the concentration does change during the course of sampling, the indoor system is assumed to be at quasi-steady state because of the length of the sampling period (2 or 4 hours). Since the influx from outdoors is assumed to be negligible given the strong concentration gradient observed from indoors to outdoors for the vast majority of compounds (Figure 1, Table S4), the emission rates represent the net effect of off-gassing and deposition of these gas-phase organic compounds to/from surfaces as they try to reach quasi-equilibrium between the gas, aerosol, and condensed surface phases.

S2B. Indoor-to-outdoor emissions:

The indoor-to-outdoor emission rates were defined as the net mass transport of a given compound across the building envelope (i.e. from the indoor to outdoor environment) and is calculated as the material balance using the difference between the indoor and outdoor concentrations and the flow rate across the building envelope ($V * AER$).

$$Flux_{indoor-outdoor} = (c_{indoor} - c_{outdoor}) * V * AER \quad [S11]$$

$$Flux_{indoor-outdoor} \left[\frac{mg}{hr} \right] = \left(\frac{m_{indoor}}{V_{sample_{in}}} - \frac{m_{outdoor}}{V_{sample_{out}}} \right) * V * AER \quad [S12]$$

$$Flux_{indoor-outdoor} \left[\frac{abund}{hr} \right] = \left(\frac{abund_{indoor}}{V_{sample_{in}}} - \frac{abund_{outdoor}}{V_{sample_{out}}} \right) * V * AER \quad [S13]$$

$Flux_{indoor-outdoor}$ = indoor-to-outdoor emission rate (expressed as a positive value where the flow of VOCs is indoors to outdoors) [mg/hr or abund/hr]

$C_{indoor}, C_{outdoor}$ = indoor and outdoor concentrations of any given compound, which are defined in either mass concentration (mg/hr) or ion abundance concentration [abund/hr]

$m_{indoor}, m_{outdoor}$ = observed mass of a compound in the paired indoor or outdoor samples [mg]

$abund_{indoor}, abund_{outdoor}$ = observed ion abundance of a compound in the paired indoor or outdoor samples [abund]

$V_{sample,in}, V_{sample,out}$ = Sample volume [L] to calculate concentration, since some sample volumes did not match for indoors and outdoors samples, calculated at either six or twelve liters, accounting for the 1:1 split between GC-EIMS and GC-APCI-TOF-MS

V = Volume of residence [m³], 420 m³ for this residence

AER = Air exchange rate [hr⁻¹], measured using CO₂ release

Note: For the compounds calibrated using an authentic standard and a five-point calibration, the calculations resulted in a mass emission rate [mg hr⁻¹]. For those without calibrations, we instead calculated them as an ion abundance emission rate [abund hr⁻¹] on a single prominent mass fragment (m/z) measured via EI-MS, which could vary in prominence between compound classes (e.g. alkanes vs. PAHs). For any of these latter compounds, average ion abundance emission rates are used here to compare between paired indoor-outdoor samples. However, it is noted that if a relative response factor were to later be available for a particular compound, it may be possible to estimate an approximate indoor-outdoor mass emission rate.

S2C. (I/O)_{open}/(I/O)_{closed}

Concurrent indoor and outdoor measurements were paired and indoor outdoor-ratios were

compared between the two ventilation conditions, abbreviated as $\frac{(I/O)_{open}}{(I/O)_{closed}}$. If $\frac{(I/O)_{open}}{(I/O)_{closed}} < 1$, the

compound has a lower I/O ratio when there is more ventilation, which is most likely due to the dilution of concentrations via air exchange, and vice versa for the >1 case. For a large majority

of compounds (305 of the 361 compounds for which this value was calculated), the ratio

$\frac{(I/O)_{open}}{(I/O)_{closed}}$ was less than 1 (Figure S6B). Therefore, most compounds experience dilution during

periods of higher ventilation, which confirms similar results from previous studies, albeit for more compounds across a wide volatility and functionality range.⁴ Concentrations of gas-phase organic compounds indoors decreased with greater ventilation rates, and the significant difference in AER between the two ventilation conditions could explain most of the observed

$\frac{(I/O)_{open}}{(I/O)_{closed}}$ distribution.

S3. Data processing (GC-APCI-TOF-MS)

The application of GC-APCI-TOF-MS for complex organic compound mixture analysis is especially novel for indoor spaces. GC-APCI-TOF-MS has been used for different applications (e.g. Khare et al.⁵), but this paper marks the first instance of non-targeted analysis on GC-APCI-TOF-MS data for indoor air samples. The native GC-APCI-TOF-MS data files were extracted for targeted high-accuracy masses representing specific molecular formulas using in-house code (MSDataView), which outputs a matrix of ion abundance at each targeted mass of interest as a function of retention time, and data was further processed in Igor Pro to integrate each of the specified masses within retention time windows (see Khare et al.⁵). This produces blank-subtracted, integrated ion abundances for each relevant molecular formula within targeted sets of compounds with general formulas of C_xH_y , $C_xH_yO_1$, and $C_xH_yO_2$. The molecular size range spanned C_{10} – C_{32} compounds for C_xH_y and C_4 – C_{25} compounds for $C_xH_yO_1$ and $C_xH_yO_2$, where formulas were specified for compounds with up to 15 double bond equivalencies (DBEs) at each carbon number, such as $[C_nH_{2n-28} + H]^+$ to $[C_nH_{2n+2} + H]^+$ for hydrocarbons (i.e. from 0 to 30 hydrogens removed from a fully saturated compound). For example, for hydrocarbons with 20

carbons (C_{20}), the masses for $C_{20}H_{42}$ – $C_{20}H_{12}$ were calculated and integrated at appropriate retention time windows, though minimal mass was observed at DBEs 10 and above. Because of the loss of alcohol groups in APCI, a further correction was made for monoterpenoids containing –OH groups. Based on the identifications of the monoterpenes in GC-EIMS, a percentage (41%) of the monoterpenoid abundance was shifted from $C_{10}H_{16}$ to $C_{10}H_{18}O$ to account for the alcohol loss. Note, individual monoterpenoid isomers were not reported in the GC-APCI-TOF-MS, as GC-EIMS was used for that purpose.

A wide range of calibration standards were run at the time of sample analysis using the same 1:1 split as previously mentioned, including (1) diesel range organics (even numbered n-alkanes C_{10} – C_{28}), (2) fatty acid methyl esters (C_8 – C_{20} even compounds), (3) a liquid standard containing 20 significantly functionalized organic compounds, and (4) a standard cylinder (Apel Riemer Environmental) containing 33 compounds of diverse functionality covering a volatility range (i.e., equivalent C^*) from C_6 – C_{13} (Table S8). To supplement this calibration, an approach for converting APCI hydrocarbon peak abundances to mass concentrations follows the method in Khare et al. to calibrate the remaining ion masses identified in the APCI data.⁵ Specifically, a five-point calibration was carried out on our GC-APCI-TOF-MS system using the NIST Gulf of Mexico 2779 Macondo Crude Oil Standard with mass concentrations determined previously by Worton et al.⁶ The response factors from the Macondo crude oil reference calibration were compared to the response factors derived for individual standards and adjusted where necessary to account for variation in response between when the Macondo standard had been ran and the simultaneous authentic standards listed above and to more accurately represent the indoor air composition. A comparison of derived RFs from the individual authentic standards and the Macondo Crude oil reference mixture were used to account for any drift in response factors

between the time of the Macondo calibration and the other standards and samples. Some RFs, including numerous n-alkanes, were derived directly from the individual standards. Aromatics RFs were found to match well, so adjustments to the Macondo-derived response factors (shown in Table S2) were only necessary for a subset of aliphatic compounds as shown in bold in Table S2. Finally, terpenes (e.g. monoterpenes, sesquiterpenes, diterpenes) had to be adjusted separately because they are not present in the Gulf of Mexico crude oil. RFs were calculated for the monoterpenes, then normalized for larger terpenes because their response factors would not be expected to match that of alkanes (straight, branched, or cyclic) of similar mass.

Emission rates for the hydrocarbon and oxygenate mixtures observed via GC-APCI-TOF-MS were calculated in a manner similar to the data from GC-EIMS. For each carbon number and double bond equivalent (DBE), the outdoor abundance was subtracted from the indoor abundance and adjusted by AER and the total building air volume. These calculations were done for CH, CHO₁, and CHO₂, and their tabulated results can be found in Table S3.

S4. Data processing (LC-ESI-TOF-MS)

Data from the filters were analyzed with Agilent MassHunter Qualitative Analysis, with the extraction of analyte peaks (“Find by Molecular Feature”) used to provide high mass accuracy molecular formulas (“Generate Formulas”). Identifications from MassHunter were imported into in-house Igor Pro code (“TOF Analysis Code”) for QA/QC, which implemented strict exclusion criteria based on molecular formula assignment, and exclusion based on blank subtraction if blanks were within 10% of field data. Volatility, in the form of effective saturation concentration, was calculated from molecular formulas using the parameterization from Li et al.⁷ The same package of code was used to generate compound composition distributions (e.g. CH, CHO, CHN, CHON, etc.) and volatility distributions (Figure 3). The volatility distributions in

Figure 3A-B were generated in both positive and negative mode for indoor (windows) open ($n=2$), outdoor open ($n=2$), indoor closed ($n=2$), and outdoor closed ($n=3$), with concurrent sampling indoors and outdoors. The long sampling times of these, in order to ensure sufficient mass loading, were prohibitive to the collection of a higher number of samples. However, the detailed non-targeted analysis of the filters represents a novel methodology for indoor aerosols. Further details concerning filter extraction, analysis, and post-processing can be found in Ditto et al.⁸

S5. Volatility distribution calculations and discussion of particle-phase data

In order to compare volatility distributions for the gas-phase methods (GC-EIMS and GC-APCI-TOF-MS), the total ion chromatograms (TIC) were exported from the MassHunter software. The n-alkanes and their retention times were identified. Saturation concentrations (C^*) for these n-alkanes were determined using the parameterization from Li et al.⁷ C^* bins, with bounds given by retention time, were calculated and applied to the TICs. Blank subtraction of the TICs was done as well to limit the contribution from contaminants and artifacts.

For the non-targeted aerosol-phase analysis (LC-ESI-TOF-MS), after the strict chemical formula restrictions and blank subtraction, the remaining formulas were combined by experimental condition (indoor vs. outdoor, windows open vs. closed). Saturation concentrations were calculated using the Li et al. parameterization and binned appropriately.⁷ Uncertainty in the volatility distribution was incorporated for each compound by assigning each a Gaussian distribution centered on its estimated C^* with a standard deviation of 0.25 $\log(C^*)$ units. Summing up all the relevant compounds led to the distributions shown in Figure S8A and S8B, where the use of a Gaussian distribution centered on each compound's C^* , as opposed to a more

traditional binning method, was done to more accurately reflect the central tendency of prominent compounds on the overall distribution and especially to overlay the distributions.

For positive-mode ESI (ESI+), which excels at the detection of most oxygen and nitrogen containing compounds (with a few exceptions, e.g. acids and nitrates), indoor and outdoor volatility distributions were similar across ventilation conditions (Figure S8C, S8D). However, some enhancement in positive-mode abundances was noted indoors when the windows were open (Figure S8D). Findings from negative-mode ESI (ESI-) volatility distributions were similar to those observed in the combined functionalized OA analysis (Figure S8E, S8F).

By comparison, SMPS measurements at the site indicate that outdoor aerosol mass ($PM_{0.75}$) concentrations were significantly higher than indoors. A key difference between the functionalized OA results and the SMPS data (and historical GC-MS particle data) is the absence of hydrocarbons from the functionalized OA data, which comprises a considerable fraction of PM and total OA.⁹ Potential variations in response factors between classes of functionalized compounds in the data, as well as the limited sample size, may be responsible for some uncertainty in a direct comparison of the volatility distributions. Furthermore, the indoor and outdoor sources (and temporary reservoirs) of functionalized OA are not fully understood and some compounds may be more prevalent indoors. Each compound included in the volatility distributions is weighted by its abundance, which can lead to an outsized contribution from compounds of particularly high abundance. Some of these prominent compound formulas appearing in both ventilation conditions include a collection of possible phthalates or diesters (e.g. $C_{26}H_{42}O_4$, $C_{22}H_{42}O_4$, $C_{20}H_{36}O_4$), $C_{12}H_{23}N$, and $C_{10}H_{21}NO$.

S6. Equilibrium timescales calculations

The rates of three processes, gas-diffusion, interfacial transport, and particle-diffusion, contribute to the equilibration timescale of gas-particle and gas-surface partitioning and are thus relevant when considering responses to changes in environmental factors in this study.¹⁰⁻¹² Timescales are generally higher for thicker bulk phases (for all three processes) and for lower volatility VOCs (for gas-diffusion and interfacial transport).

In order to calculate the equilibrium timescales for a range of conditions relevant to this site, a collection of literature sources were consulted.^{10,11,13,14} For the three limiting processes, gas-diffusion (τ_g), interfacial-transport (τ_i), and bulk-diffusion (τ_b), the equations from Mai et al.¹¹ were used as follows. It is key to note that each of these three equations were derived for the scenario where that particular process is limiting, i.e. the gas-diffusion equation below only applies if gas-diffusion is the limiting process by far.

$$\tau_g = H' * \frac{X^2}{3D_g} = \frac{\rho_p}{C^*} * \frac{X^2}{3D_g} \quad [S14]$$

$$\tau_i = H' * \frac{4X}{3\alpha v_{rms}} = \frac{\rho_p}{C^*} * \frac{4RX}{3\alpha v_{rms}} \quad [S15]$$

$$\tau_b = \frac{X^2}{\pi^2 D_b} \quad [S16]$$

τ_g, τ_i, τ_b - Equilibrium partitioning timescales (e-folding time) [s]

H' --- Henry's Law constant, $H' * C^* = \rho_p$ [unitless]

ρ_p --- Particle density [g cm^{-3}], measured to be between 1–1.7 g cm^{-3} , provided as 1.4 g cm^{-3} for SOA particles^{15,16}

C^* - Effective saturation concentration, related to equilibrium fraction of organic material split between the gas- and aerosol-phase [$\mu\text{g m}^{-3}$]

X - Bulk thickness or particle radius [nm]

α - Accommodation coefficient, i.e., how likely an interacting molecule “sticks.” [unitless]

v_{avg} - Average speed, calculated by the following from kinetic theory of gases

$$v_{avg} = \sqrt{\frac{8RT}{\pi(MW)}} \quad [S17]$$

R – gas constant [8.314 J mol⁻¹K⁻¹]

MW – Molecular Weight [g/mol]

T – temperature [K], assumed to be 298K

D_g, D_b = Diffusion coefficient of gas and bulk particle or surface, respectively [m² s⁻¹], calculated via Stokes-Einstein:

$$D = \frac{k_B T}{6\pi\eta R_p} \quad [S18]$$

k_B – Boltzmann constant [1.38E-23 m² kg s⁻² K⁻¹]

η – dynamic viscosity [Pa s]

Since the equation for the average molecular speed contains molecular weight, an equation to estimate molecular weight as a function of effective saturation concentration C^* can be substituted in. A comparison of molecular weights to C^* was found to yield the following relation.

$$MW = 292.36 - 27.18 * \log(C^*) \quad [S19]$$

The goal of calculating the three timescales is to determine the longest timescale and thus the limiting process. Though an explicit formula for the equilibrium timescale can be found, these equations rely on assumptions based on which process is limiting. For the purposes of this manuscript, we want to calculate the timescale over a range of volatilities (C^*) and particle diameters/surface thicknesses. We also present the octanol-air coefficient (k_{OA}) for certain compounds for comparison to their C^* . A relation from Xiao and Wania can be used to convert between these two parameters.¹⁷

$$\log(k_{OA}) = -0.988 * \log(C^*) + 11.58 \quad [S20]$$

The phase state (i.e. solid, semi-solid, or liquid) of an aerosol is a function of the temperature, the RH, and also the composition of the aerosol.^{18,19} Dynamic viscosity indicates the actual flowability or resistance to motion. Previous measurements of dynamic viscosity cover a fairly

large range of particle sizes and viscosity. However, it remains a challenge to measure the dynamic viscosity of ultrafine particles (UFP), and determining the dynamic viscosity of Aitken mode particles requires scanning electron microscopy (SEM).²⁰

A recent modeling effort by Zhang et al. shows that the dynamic viscosity of IEPOX-SOA, seeded by organic SO₄, yields aerosol of viscosity between 10⁵–10⁶ Pa s.²¹ The aerosols in this study are not likely to be as viscous, since these chamber experiments are designed under Amazon conditions and with high levels of precursors. It is not expected that the St. Louis suburb would see such high outdoor levels of gas-phase organic compounds as in this chamber study. For a particle radius of 100 nm, a dynamic viscosity of 10⁵ Pa s is equivalent to a D_b of 4.4*10⁻²⁰ m² s⁻¹, which is firmly in the semi-solid regime. Other recent (modeled) measurements for SOA present D_b values in the 2.5–8.5*10⁻¹⁹ m² s⁻¹ range.¹³ For the purposes of the timescales analysis here, the value of 4*10⁻¹⁹ m² s⁻¹ derived from Zaveri et al. was used to describe the diffusion coefficients through both the surface and particle bulk phases.¹³ It should be noted that while this value was not a direct measurement, these numbers best match empirical data.

The other major variable is α , the accommodation coefficient. A value of 1 means all molecules are incorporated into the bulk (no rejection). For pinene SOA and similar proxies for environmentally relevant organic particles, previous research have measured accommodation coefficients of 0.1–1.^{22–24} Mass accommodation coefficients have observed and predicted to be between 10⁻⁷–10⁻⁴ for SVOCs partitioning to FEP/Teflon surfaces.^{14,25–27}

Previous literature has also shown that α gets smaller for more volatile compounds. In Huang et al., the following equation is given to relate α to the volatility (C^*) of the target species.²⁷

$$\log(\alpha) = a * \log(C^*) + b \quad [S21]$$

In this equation, a and b are coefficients equal to -0.6566 and -2.744, respectively.²⁷ It is important to note that since the value of α is inversely proportional to the equilibrium timescale for interfacial-transport (equation S15), orders of magnitude changes in α can lead to major changes in the equilibrium timescale. Given these parameters, we predicted the equilibrium timescale for both surfaces and particles over a range of surface thicknesses (1 nm to 750 nm) and volatilities (10^2 to 10^8 $\mu\text{g m}^{-3}$) (Figures S11A, S11C).

We may need to consider a lower accommodation coefficient because of the difference in bulk surfaces present compared to the surfaces present in literature. However, further experiments are needed to determine experimental values for the mass accommodation coefficient for a variety of compounds with these volatilities. Further refinements to the α values used in this calculation may also be related to penetration depth for surfaces or bulk materials. Recent work by Shiraiwa et al. provides a new equation to calculate α as a function of penetration depth into the particle (or material) bulk.²⁸

$$\alpha(x_{eff}) = \alpha_s * \frac{1}{1 + \frac{\alpha_s \omega C^0}{4 D_b \rho_p} * x_{eff}} \quad [S22]$$

$\alpha(x_{eff})$ – Effective accommodation coefficient, considering penetration depth of x_{eff}

α_s – Accommodation coefficient at the surface (i.e. $\alpha(0)$)

ω – Mean gas-phase velocity [m^2s^{-1}] (same as v_{avg} above)

x_{eff} – Penetration depth, estimated to be $x_{eff} \approx \frac{r_p}{5}$ for non-reactive uptake

The use of this equation would be most suitable for multi-layer kinetic modeling of particles and surfaces. Its utility in explaining longer-term observational data, such as in this manuscript, is currently uncertain, but as researchers collect experimental data for the mass accommodation coefficient of various surfaces, such as paints, lacquers, wood, etc., under diverse controlled

conditions, we may be able to use these refinements to more accurately explain observational data.²⁹

S7. Observations and potential contributing factors to volatility-dependent behavior in perturbation experiments

On the day of perturbation experiments (8/10/2018) with seed aerosol introduction 10:00 – 16:00 and windows opening and closing 12:00 – 18:00, a pan of Pine-Sol was also left out to evaporate starting at 6:00, after windows had been left open overnight. Though I/SVOCs were observed to condense to the inorganic seed aerosol via TAG measurements, Pine-Sol components were not explicitly found in that data. Comparison of GC-APCI-TOF-MS data between non-Pine-Sol and Pine-Sol measurements showed little difference in terpene proportion between those experimental conditions. Elevated levels of some compounds expected to be in Pine-Sol were found in GC-EIMS analysis, but the behavior was in line with other compounds of similar volatility not expected to be in Pine-Sol. Therefore, we conclude that this undisturbed reservoir of Pine-Sol had minimal effect on the gas- and particle-phase levels of organic compounds in the home during this perturbation experiment.

To categorize observed changes during the perturbation experiment, compounds were split into three groups based on their observed behavior. These were labeled “VOC”, “light IVOC”, and “IVOC”. For our GC-based instruments, these boundaries occurred around 15 and 20 minutes in GC retention time (approx. $\log(C^*) = 5.5$ & $\log(C^*) = 6.5$), where we observed clear differences in behavior, with inflection points evident in the graph of their abundance (or indoor-outdoor emissions) relative to the baseline early morning sample (Figures 3C-D) and each other (Figure S10). The observed effective saturation concentration boundary between “VOC” and “light IVOC” occurs at a $\log(C^*)$ of 6.5 (Figure 4), which is consistent with a typical VOC/IVOC

boundary. This pattern appears to be coincidental here but may warrant future research. As the exact cause of the observed volatility-dependent response cannot be determined based on the single experiment, here we describe observations across multiple instruments during this perturbation experiment and constrain key factors to guide future research.

Gas-surface partitioning

The possibility of gas-surface partitioning contributing to the trend of gas-phase compound concentrations in the residence is discussed in the main text. Condensed reservoirs like bulk reservoirs (and surface films to a lesser extent) can act as a sink/source for organic compounds, and the fraction of a compound found in the gas phase versus the surface phase is determined by the surface film thickness and by the octanol-air coefficient (K_{oa}).³⁰ While a compound's octanol-air coefficient and volatility (i.e. C^*) are not perfectly correlated, they are generally inverse of each other: larger and more functionalized compounds tend to have a lower volatility and higher octanol-air coefficient, and vice versa. With persistence defined as the ratio of the reservoir magnitude over removal rate, organic compounds have been shown to persist less than an hour as a result of surface reservoirs alone if they sufficiently partition to the organic surface film (i.e. $\log(K_{OA}) > 9$).³⁰ The observed persistence of light VOCs in this experiment, most of which have $\log(K_{OA}) < 6$ and are thus expected to remain in the gas-phase, implies their rapid and constant partitioning (i.e. emission) from bulk reservoirs and surface films (to a smaller extent) to the gas-phase in the unoccupied home. On the other hand, IVOCs with $\log(K_{OA})$ close to or greater than 6 partition more readily between the gas and surface phases, which makes changes in their concentrations more sensitive to shifts in environmental conditions.

The highly viscous organic surface layer and low predicted mass accommodation coefficients suggest that gas-surface timescales could be sufficiently long (Figure S11) to lead to the

decreased abundances (and associated indoor-outdoor emissions) of IVOCs noted in Figure 4. We have insufficient information to pinpoint what the main drivers are; hence, we recommend additional similar experiments with controlled perturbations and/or under controlled conditions to isolate the individual processes driving these observations.

Other possible factors

Environmental factors

A change in environmental conditions during the day, such as rising temperatures, may affect the emission of organic compounds from surfaces. However, comparing samples from other days taken at mid-day to those collected in the morning suggest that the increase in solar radiation alone does not seem to explain the trend. Also, other indoor environmental factors change minimally throughout the day (i.e. temperature, RH; Figure S9) due to HVAC control. Still, warmer outdoor temperatures or increased light penetration may drive emissions from furnishings and building surfaces through other indirect and unstudied interactions.

Though it is unclear which changes in environmental factors could drive the gas-surface partitioning toward the results observed in this study, possible factors may include fluctuations in temperature, changes in relative humidity, or other factors that influence bulk surface properties. During the baseline measurement (9:00), the temperature outside stayed below 27°C (~80°F) (Figure S9). It then rose up to above 35°C (95°F) for the 13:00 and 15:00 samples before falling off during the 17:00 sample. On the other hand, outdoor relative humidity started above 80%, then started dropping during the 9:00 sample. It reached and stayed at 40% RH from 12:00 to 16:00, at which point the RH went back up to 80%. However, the indoor values for temperature and relative humidity stayed fairly constant throughout the sampling period, with the temperature reaching a maximum of 25°C (77°F) from a baseline of 22°C (71°F). Relative humidity indoors

did drop from an average of 55% to <40% during the day. However, it appears unlikely that these two indoor factors alone could have prompted the volatility-dependent changes in gas-phase VOC and IVOC concentrations, but the potential impact of HVAC system cycling is an important consideration that could have played a role in the observations here.

Gas-particle partitioning

While gas-particle partitioning is an important topic of study, it is not likely to be the main (or sole) driver of our observations in the unoccupied home. The main arguments against gas-particle partitioning for our system are that (a) VOCs and IVOCs equilibrate relatively quickly with particles here (Figure S11) and (b) the volume of the particle reservoir is insufficient to affect such a large difference (4-fold) in gas-phase VOC abundances. Regarding (b), a trivial amount of VOCs and IVOCs would be expected to be in the particle-phase compared to the bulk/surface reservoir and any changes to the particle-phase would not influence overall gas-phase concentration, thus implying that other factors contribute to the changes we observe. However, we present a combination of SMPS data (Figure 9) and equilibrium timescale theory (Figure S11) to predict these partitioning timescales.

One perturbation noted is the intrusion of aerosols, both from the intentional addition of inorganic seed aerosols (starting at 10:00) and from the intrusion of ultrafine particle (UFP) plumes likely from outdoors (Figures S9C, S9D). We also note that indoor-outdoor emissions of VOCs remain high for all samples relative to the baseline sample and trend with $PM_{0.75}$ mass concentrations (Figure 4B, Figure S9F), while IVOC emissions stay close to 1 at 11:00, rise at 13:00, reach a nadir at 15:00, and go back up at 17:00 (Figure 4B). The likely viscous nature of these secondary organic particles ($D_b \sim 4 \cdot 10^{-19} \text{ m}^2 \text{ s}^{-1}$) implies they will be limited by particle-phase diffusion (Figure S11).

For comparison, previous research suggests that while SVOCs and LVOCs will experience significant partitioning under slower timescales, VOCs and IVOCs should undergo rapid equilibration.^{11,14,30} Traditional partitioning theory indicates that VOCs and IVOCs should be almost exclusively found in the gas-phase. However, recent work has shown that reduced nitrogen IVOCs (CHN) and other IVOCs (e.g. C₇₊ carboxylic acids) can undergo a non-trivial amount of partitioning to the particle-phase and take longer to come to equilibrium than equilibrium timescale theory expects.^{14,31,32} The moderate relative humidity and acidic nature of ammonium sulfate seed in this experiment may also be a factor in the overall uptake of compounds of IVOCs and possibly VOCs studied here, not just SVOCs and LVOCs. It is also worth noting that equilibrium is an idealized end-point that does not account for the ever-changing dynamics of a real-world environment.

Most calculations of gas-particle equilibrium timescales so far have been modeled for single particles or extended to monodisperse aerosol. Real-world aerosol distributions are rarely monodisperse and possess a variation in composition and physical and chemical dynamics that must be considered. Previous studies have accounted for these dynamic systems by running simulations with flexible parameters and chemistry included.¹⁴ More studies need to be conducted in the future to determine what consequences aerosol intrusion may have on gas-phase concentrations of I/SVOCs, as there were multiple perturbations during the one day of perturbation testing, making it difficult to isolate their effects.

Supporting Information References

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Figures

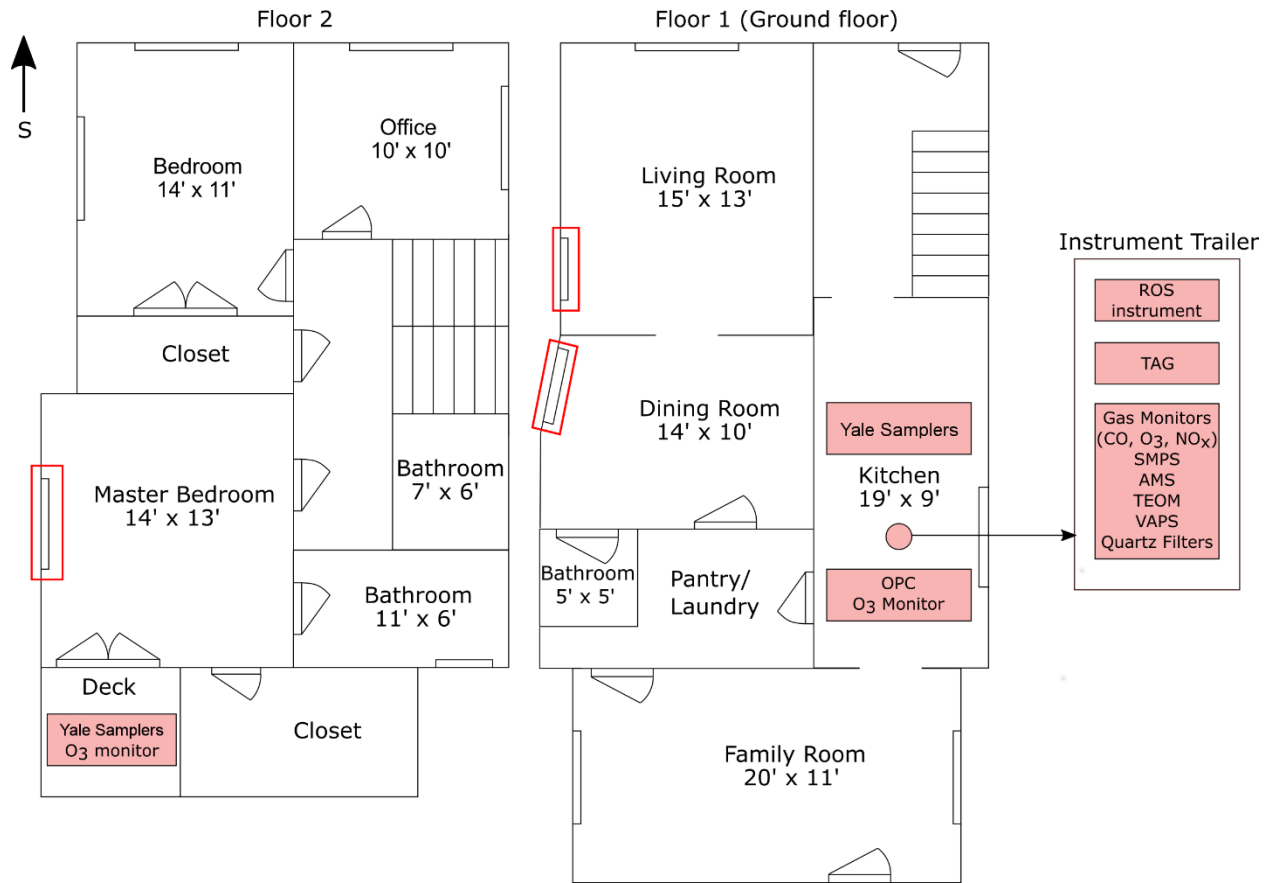


Figure S1. Floorplan of the residence. Red boxes denote the windows that were opened and closed to increase and decrease ventilation.

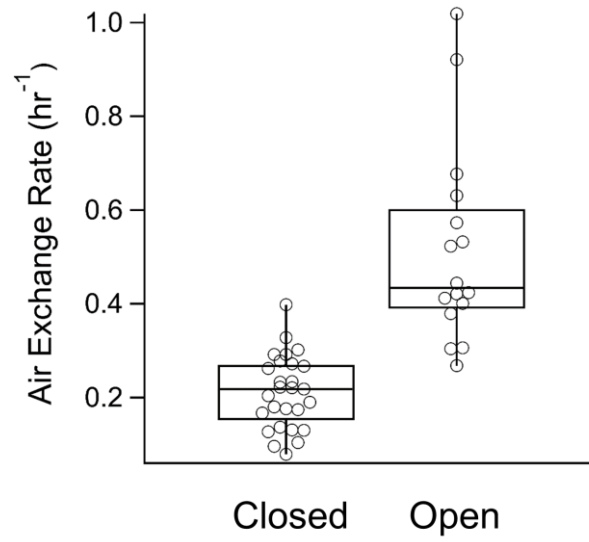
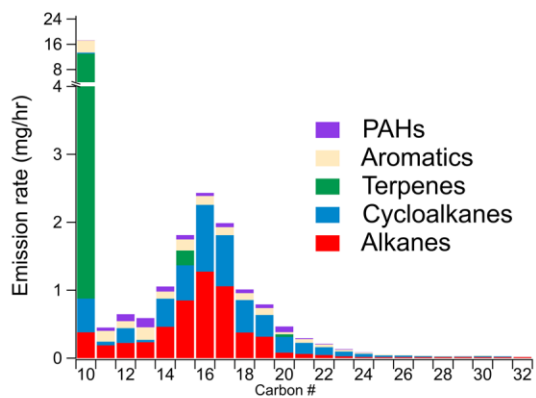


Figure S2. Comparison of air exchange rates for windows open vs. windows closed. The average AER is 0.21 hr^{-1} when the windows were closed and 0.51 hr^{-1} with the windows open.

(A) Windows Open



(B) Windows Closed

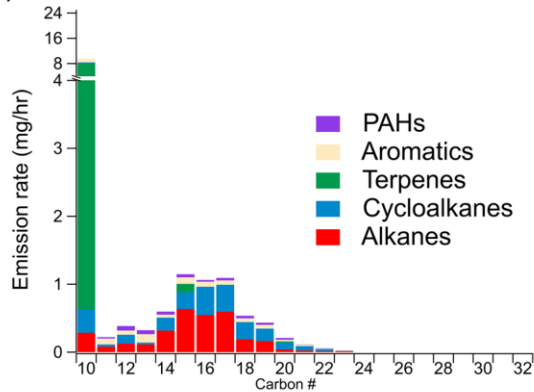
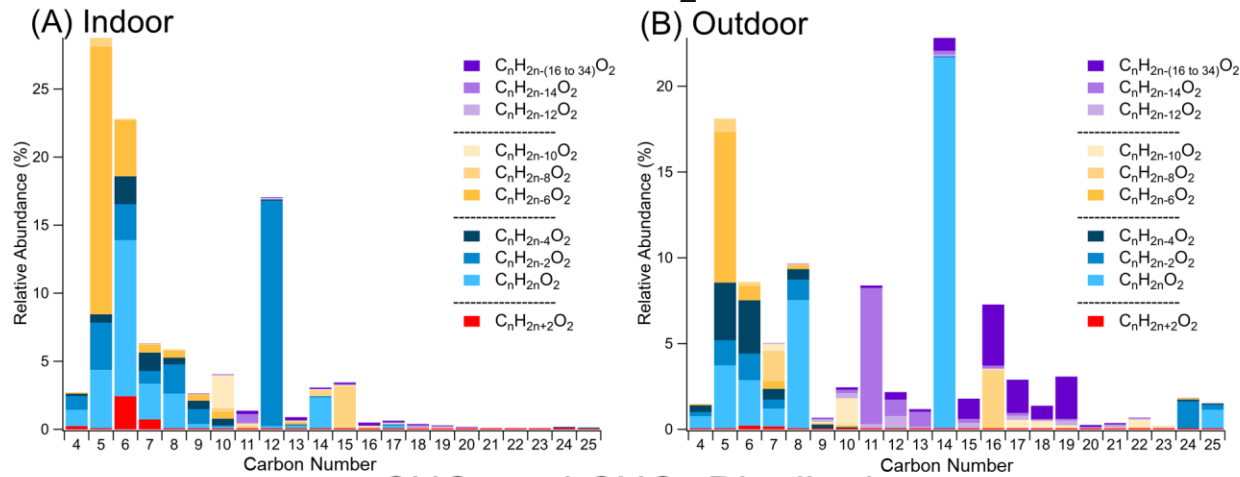


Figure S3. Speciated indoor-outdoor emission rates of hydrocarbons as a function of ventilation (windows open, left; closed, right) and colored by type of compound. These values correspond to the right axis scale in Figure 1A.

Gas-Phase CHO₂ Speciation



CHO₁ and CHO₂ Distributions

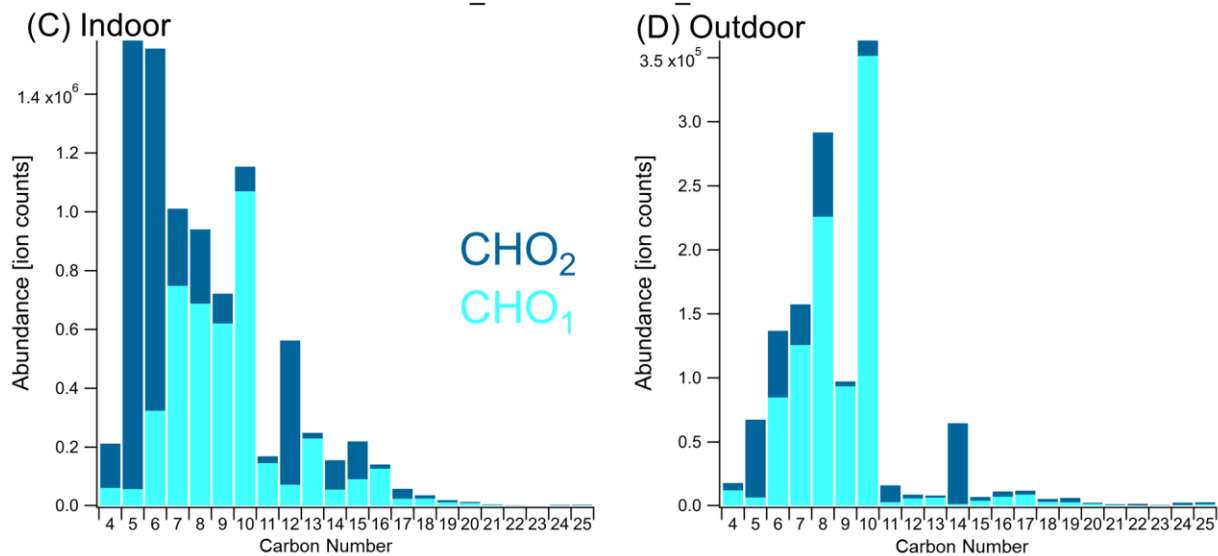
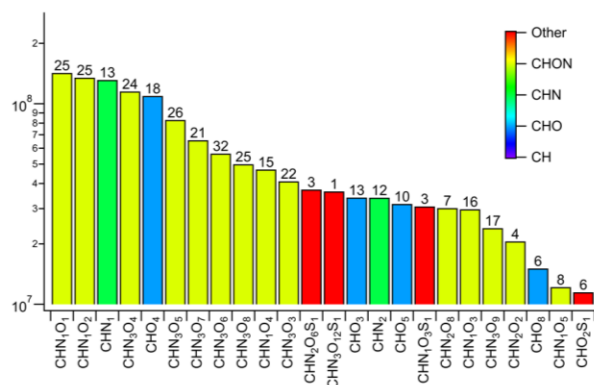
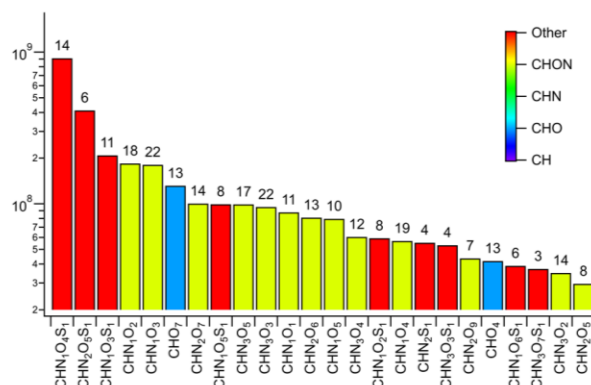


Figure S4. (A, B) Speciation of gas-phase organic compounds containing two oxygen atoms (CHO₂) measured by GC-APCI-TOF-MS and (C, D) the distribution of CHO₁ and CHO₂ by carbon number. As discussed in the main text, CHO₂ abundances were also considerably higher indoors.

(A) LC-ESI Positive



(B) LC-ESI Negative



(C) GC-APCI

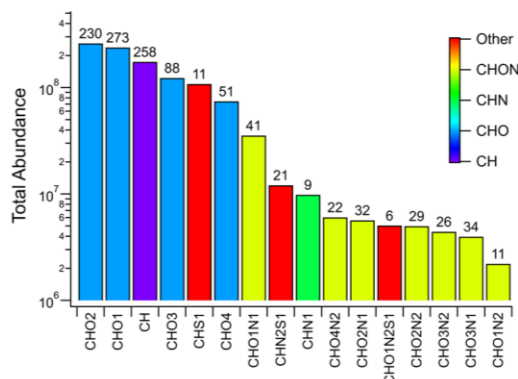


Figure S5. Abundance-weighted elemental composition distribution via a non-targeted search for all aerosol-phase samples and a gas-phase sample (for comparison). Elemental compositions of aerosol-phase compounds identified by LC-ESI-TOF-MS via a non-targeted search of all samples are shown in positive (A) and negative (B) mode with total ion abundance on the y-axis. One gas-phase sample measured using gas chromatography (i.e. GC-APCI-TOF-MS) is shown for comparison in (C) to examine more highly-functionalized compounds observed in the gas-phase but is different than the targeted search results (e.g. Figure 1), which are better suited to observe the complex mixtures of C_xH_y and $C_xH_yO_{1-2}$ isomers. Number of unique compounds given by numbers atop each bar. Compounds identified using the “Find by Molecular Feature” and “Generate Formulas” function in Agilent MassHunter software.

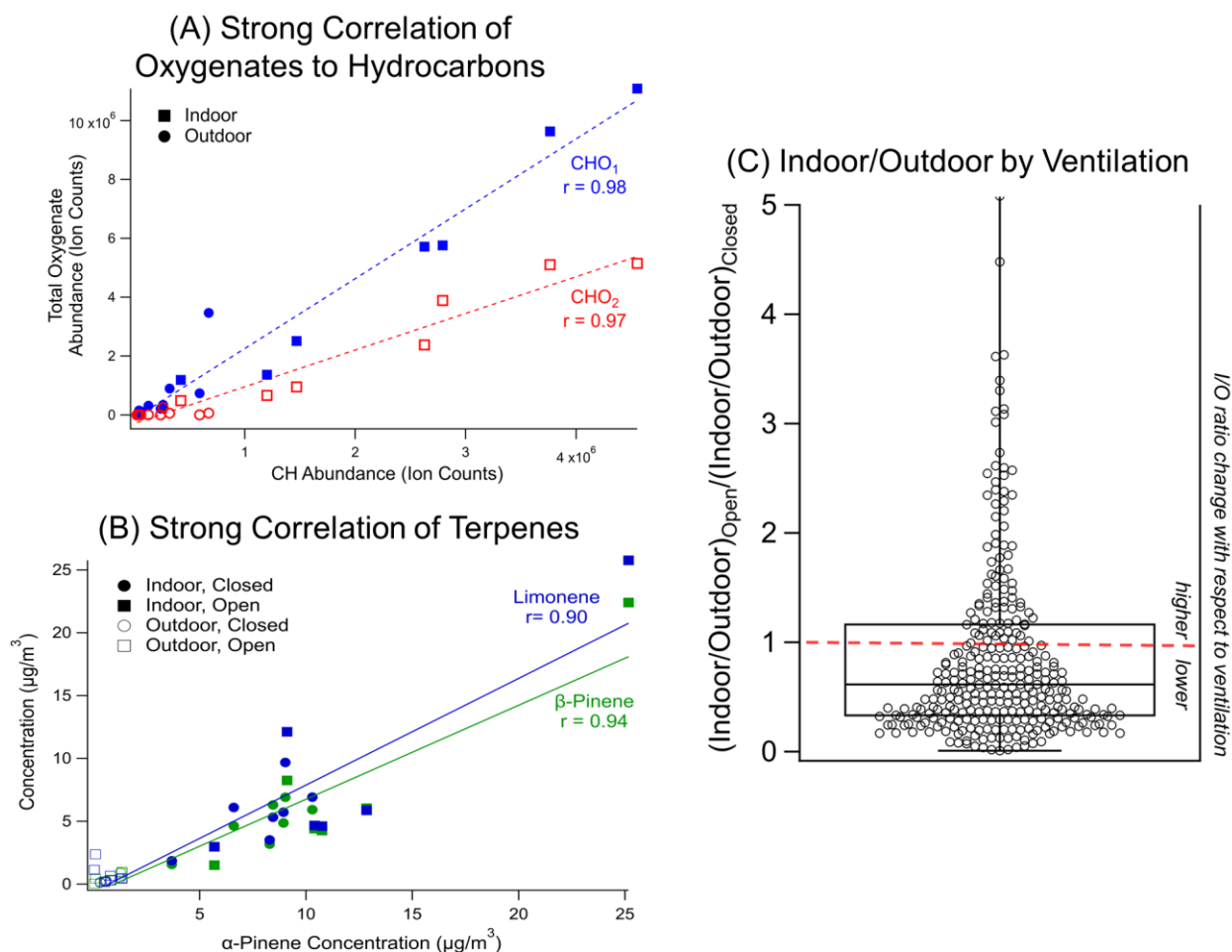


Figure S6. (A) Strong correlation in gas-phase data for oxygenates vs. hydrocarbons (by ion abundance for comparison to Figure 2A) and (B) for individual monoterpene concentrations. (C) Effect of varying ventilation conditions on the abundances of individual compounds. The terpene concentrations in (B) were calculated from GC-EIMS analysis and calibrated via standards. If the overall ratio is less than 1 in (C), then the I/O ratio is going down when ventilation is introduced, indicating that either the indoor mixing ratio has dropped or the outdoor mixing ratio has increased. Note for panel A: the response factors for CH and CHO_{1,2} are not equivalent so the actual ratios may vary in terms of mass abundance, and the CH compounds includes C₁₀₊ compounds, while CHO_{1,2} include C₄₊. However, the prevalence of CHO_{1,2} compounds in the C₄₋₉ range is shown by the predominance of oxygenates in Figure 2D and Table S3. Note for panel C: the box of the box and whisker plot demarcates 75th, 50th, and 25th percentiles while the whiskers show the maximum and minimum.

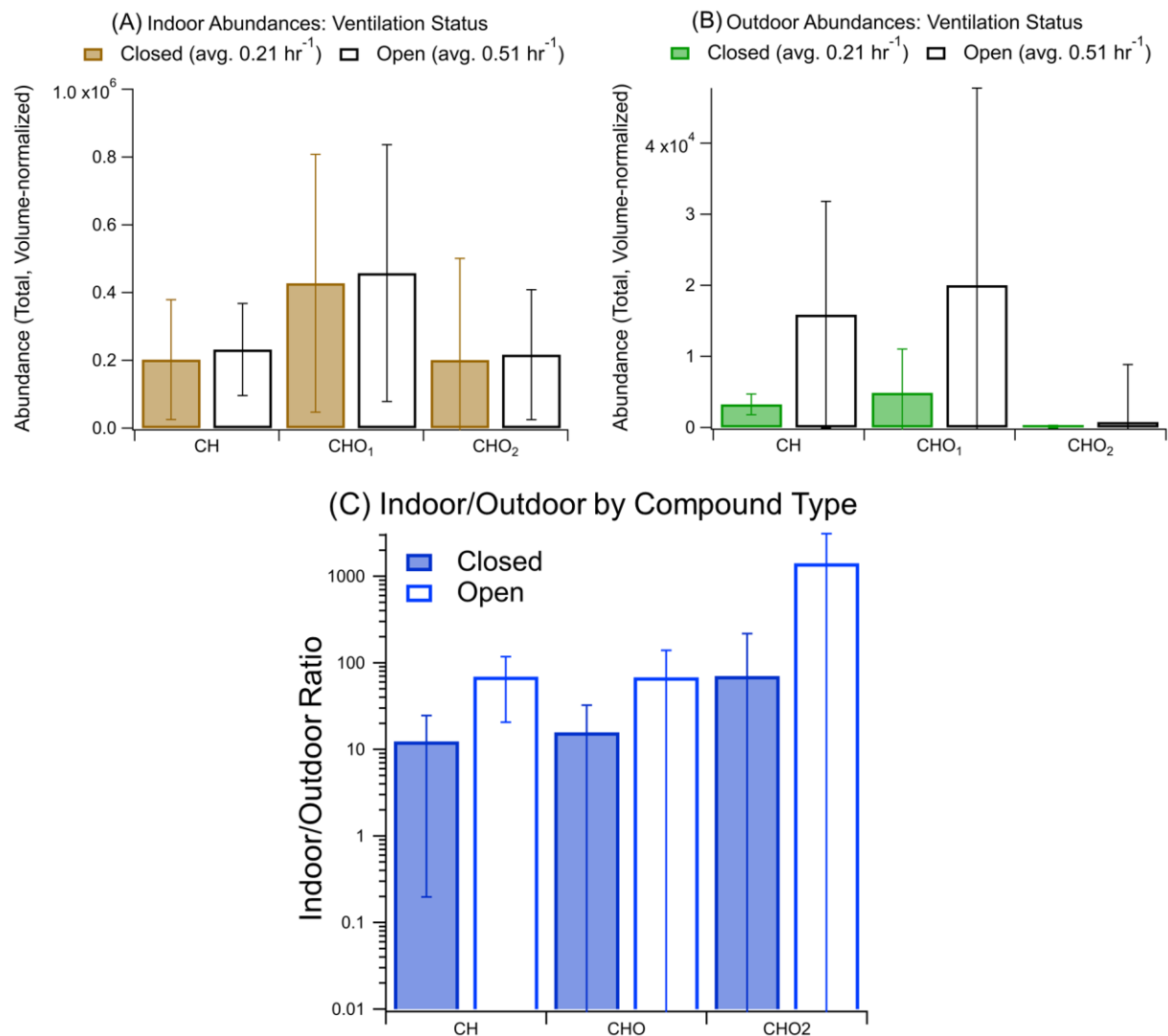
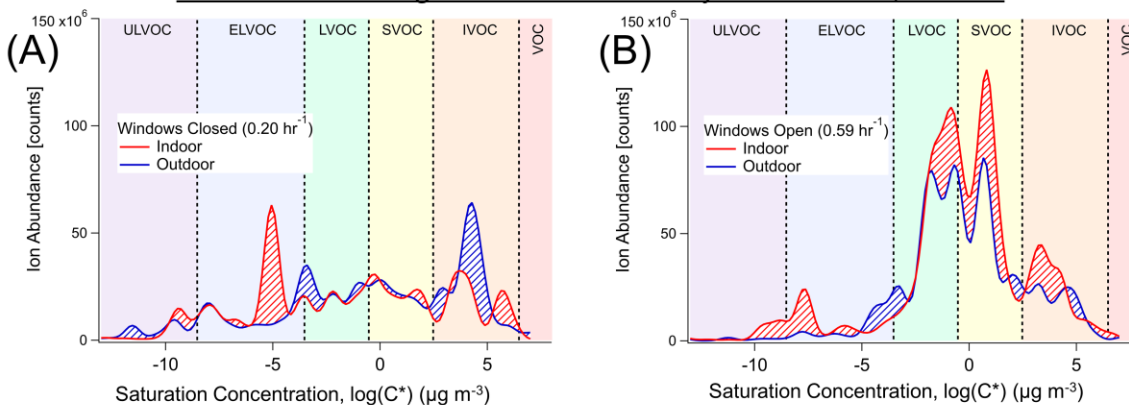
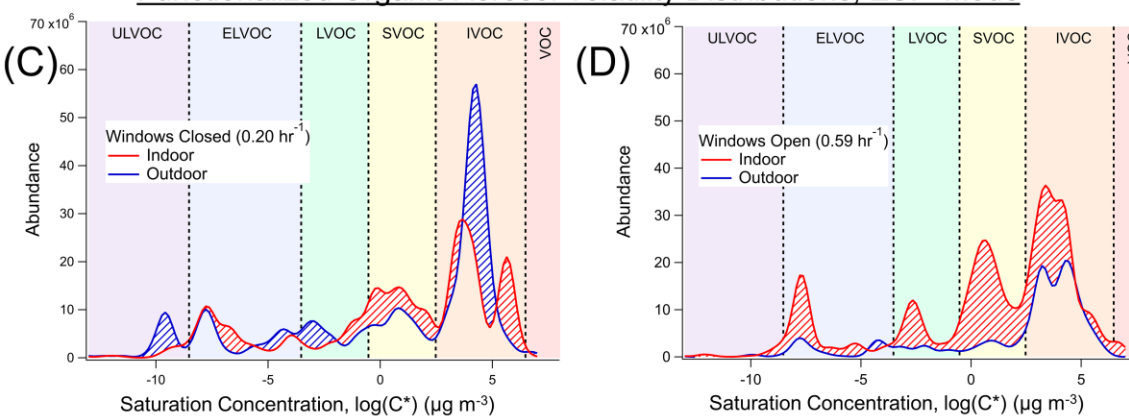


Figure S7. Total abundance of C_xH_y and $C_xH_yO_{1-2}$ complex mixtures measured via GC-APCI-TOF-MS under different ventilation conditions (A, indoors; B, outdoors) and slight difference in I/O ratio between ventilation conditions (C). Indoor/Outdoor ratios in (C) for paired (i.e., coincident) samples ($N_{\text{closed}} = 3$ pairs, $N_{\text{open}} = 3$ pairs) may be skewed by variations in outdoor concentrations of the complex mixtures in the area of the home, including low concentrations of the overall complex mixture of gas-phase organic compounds in the outdoor environment during closed window sampling periods, as seen in (B). Note: differences in outdoor concentrations, which are minor compared to indoor abundances, do not meaningfully affect indoor-outdoor emission rate estimates between windows open and closed conditions.

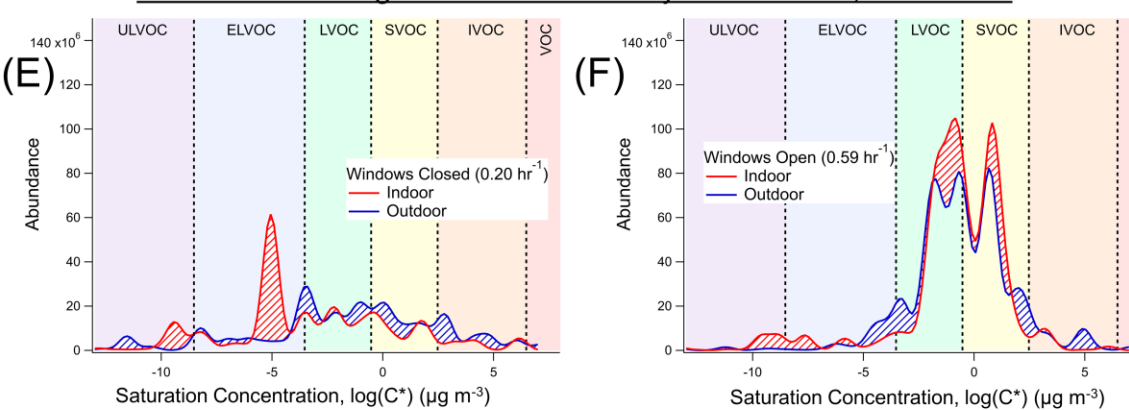
Functionalized Organic Aerosol Volatility Distributions, Overall



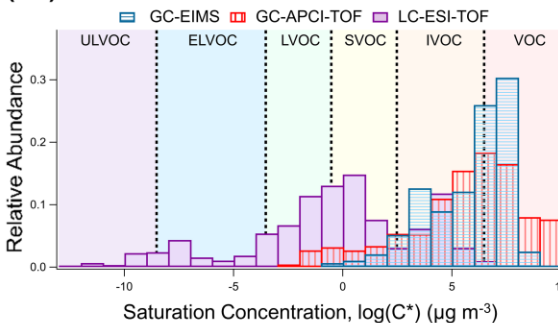
Functionalized Organic Aerosol Volatility Distributions, ESI+ Mode



Functionalized Organic Aerosol Volatility Distributions, ESI- Mode



(G) Volatility Distribution Across Instrumentation



(H) GC-APCI Indoor vs. Outdoor Distribution

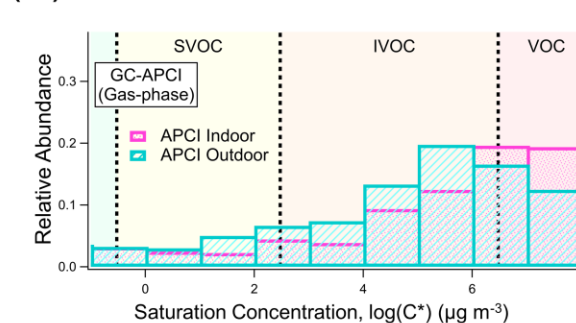
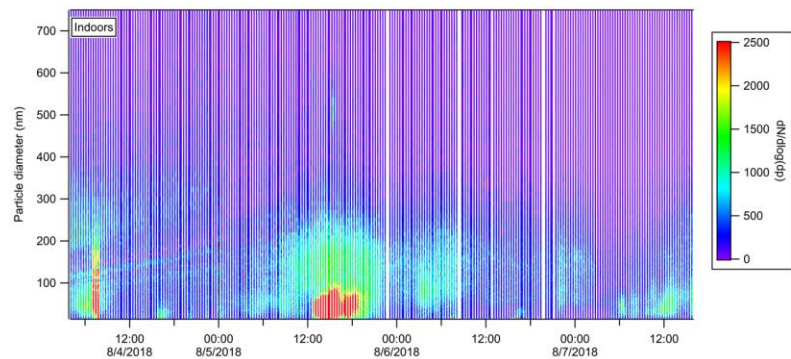
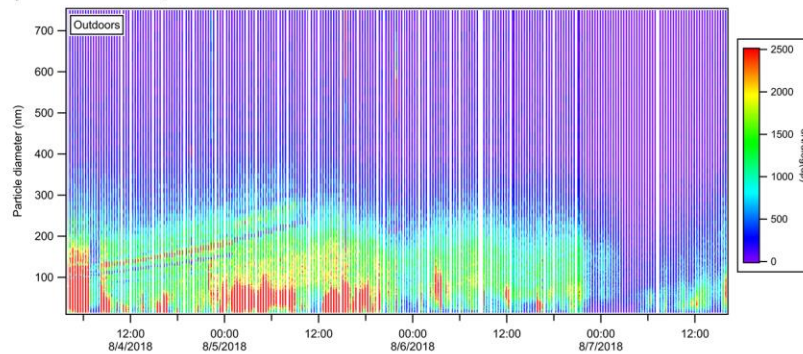


Figure S8. (A-B) Functionalized OA volatility distributions for indoor ($N=4$ filters, red) and outdoor ($N=5$ filters, blue) samples collected under different ventilation conditions in the unoccupied home and further divided between (C-D) positive and (E-F) negative mode ionization for functionalized aerosols measured via LC-ESI-TOF-MS. (G) All indoor and outdoor samples shown together at the unoccupied home in St. Louis site across the three different analytical techniques for comparison to Figure 3D, and (H) a comparison between indoor and outdoor GC-APCI samples from the unoccupied home. The process for calculating volatility distributions seen in (G-H) can be found in Section S2. The slight differences between the gas-phase volatility distributions in (G) and the targeted results in Figure 1 may be due to differences between the targeted and a non-targeted analyses (i.e. Figure 1A-D focuses on CH and CHO₁ compounds) and response factor differences between ion abundances (here) and calibrated mass contributions for the hydrocarbons in Figure 1 A-B.

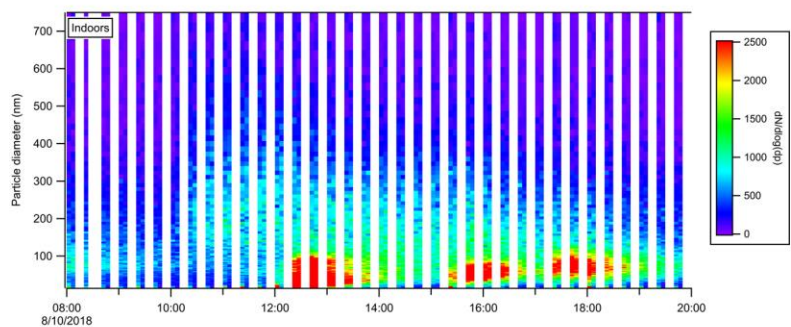
(A) Full Experiment Indoors



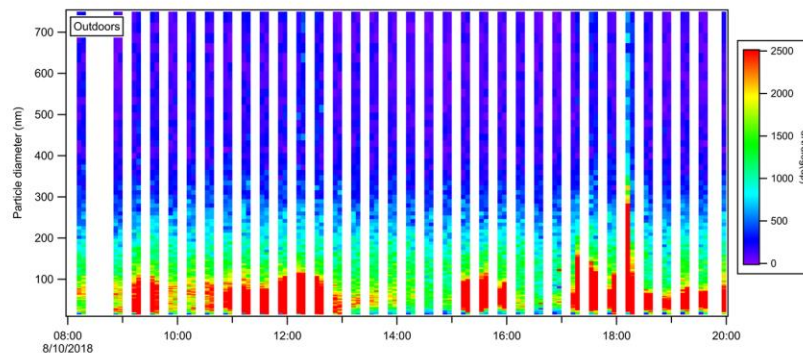
(B) Full Experiment Outdoors

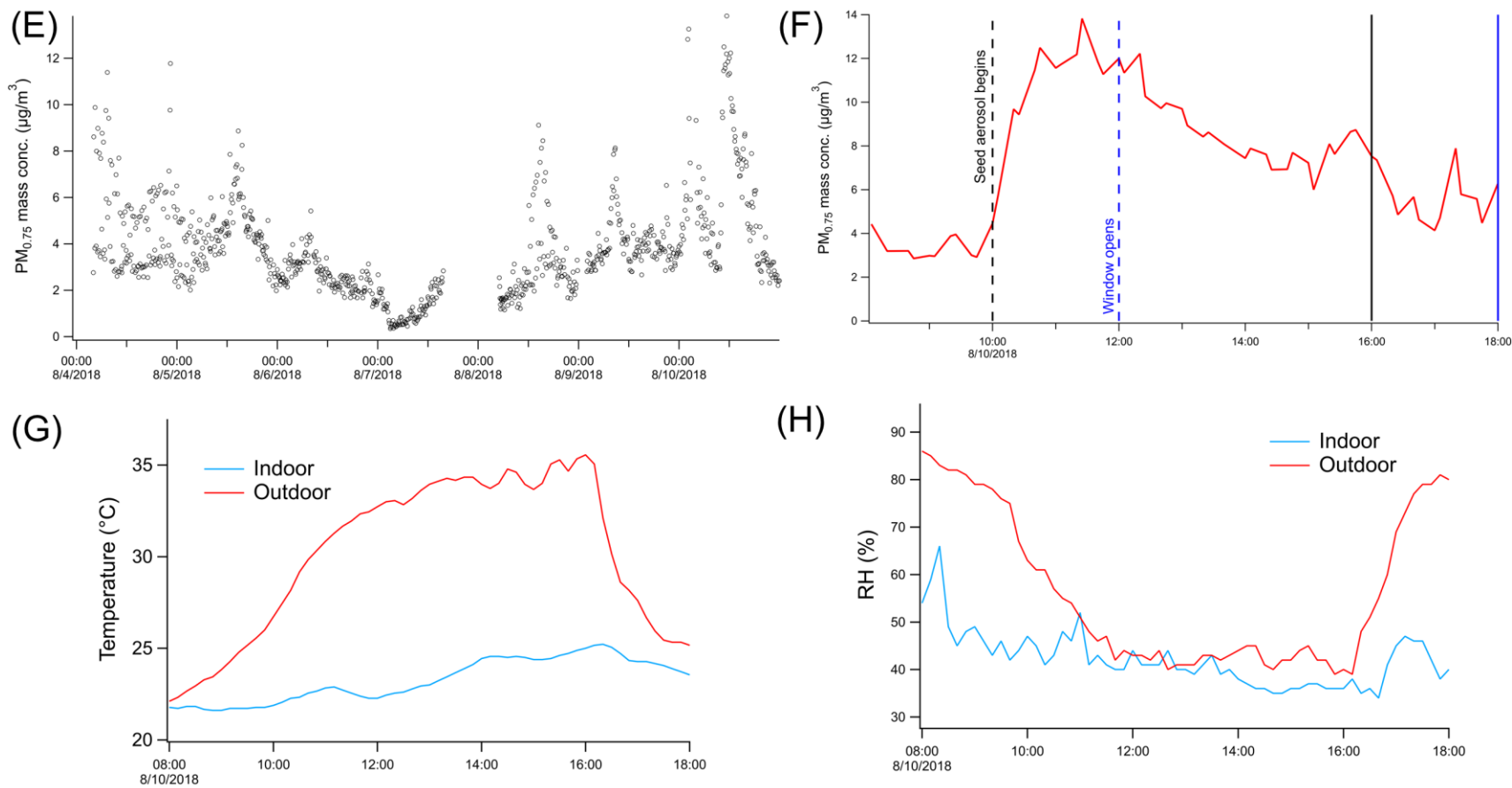


(C) 8/10/2018 Indoors



(D) 8/10/2018 Outdoors

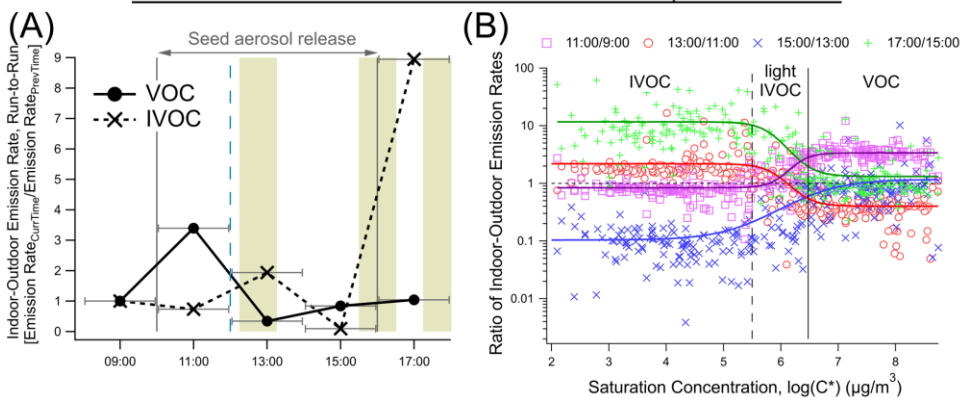




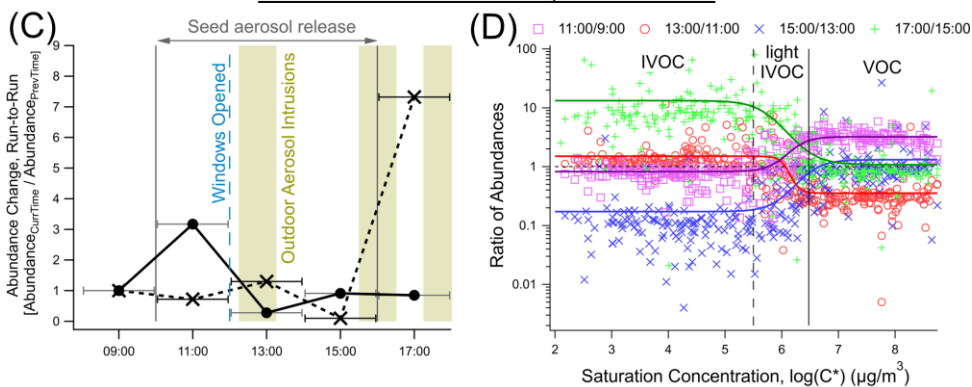
2

3 **Figure S9.** Indoor and outdoor SMPS data for the full study (A, indoor; B outdoor) and during the perturbation experiment on
 4 8/10/2018 (C, indoor; D, outdoor); the integrated mass concentration for PM_{0.75} for the full study (E) and the perturbation experiment
 5 (F); and temperature (G) and relative humidity (H) measurements during the perturbation experiment.

VOC/IVOC Indoor-Outdoor Emission Rate, Run-to-Run

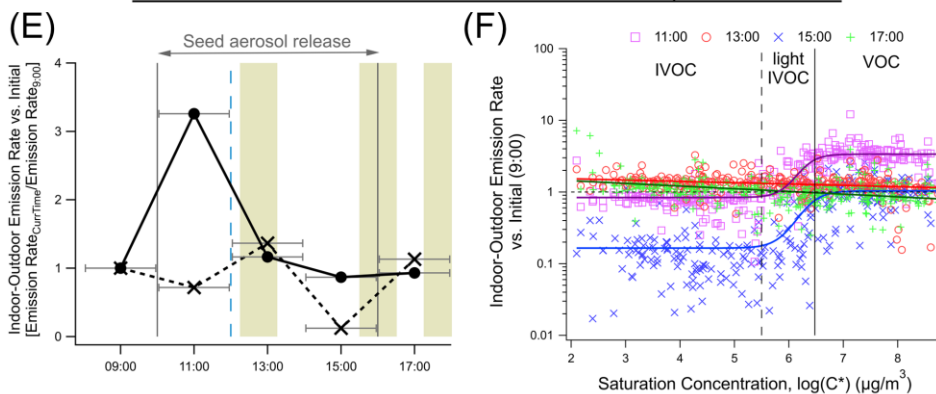


VOC/IVOC Abundance, Run-to-Run

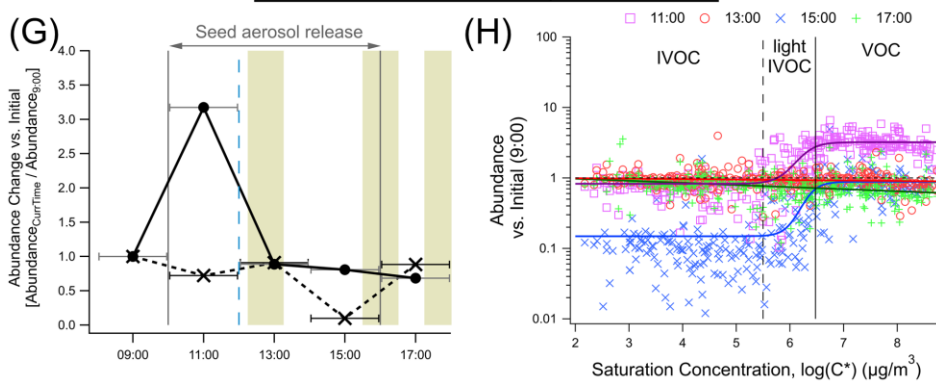


6

VOC/IVOC Indoor-Outdoor Emission Rate, vs. Baseline



VOC/IVOC Abundance, vs. Baseline

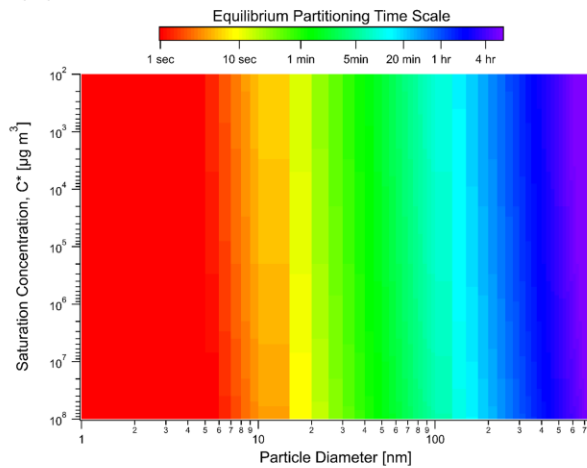


7

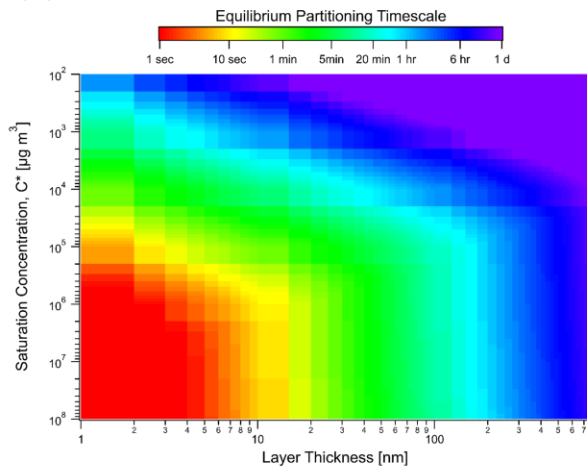
8 **Figure S10.** Indoor-outdoor emission rates (A, B, E, F) and abundances (C, D, G, H) during
9 perturbation events, calculated as a run-to-run ratio (A-D) and compared to baseline (E-H). The
10 run-to-run data are depicted similarly to Figure 4, except the values are divided by the previous
11 run instead of the initial (9:00) sample. “VOCs”, “light VOCs”, and “IVOCs” were grouped as
12 described in Section S4.

13

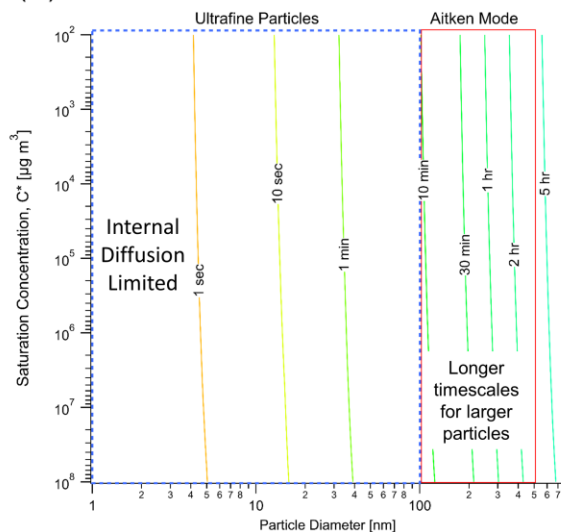
(A) Particle Timescales



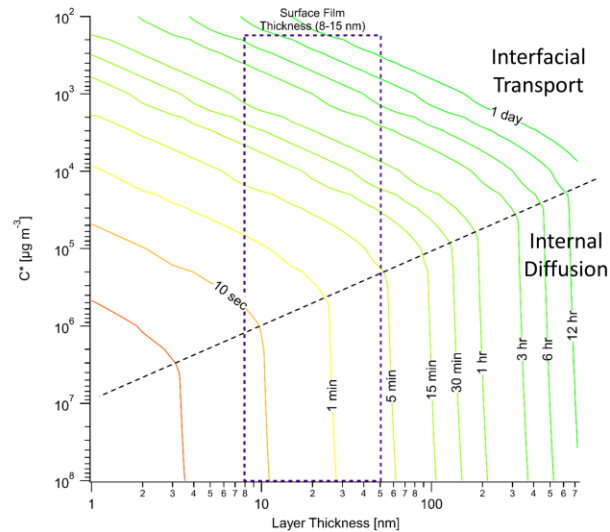
(B) Surface Timescales



(C) Particle Timescales



(D) Surface Timescales



14

15 **Figure S11.** Analysis of gas-particle and gas-surface equilibrium timescales as a function of
16 volatility (C^*) vs. particle diameter or layer thickness, respectively. Panels C-D show the same
17 calculations as A-B as contour plots and a wider range of layer thicknesses in D. Areas of C-D
18 are labeled to indicate regimes for known particle diameters (in C; dashed blue, ultrafine
19 particles; red, Aitken mode) and surface film thicknesses (in D; purple, surface film thickness).³³
20 Note: Typical surface films have a thickness of 8-15 nm.³³ However, bulk reservoirs indoors may
21 have a deeper penetration depth, so we extended the thickness here. For example, surface
22 coatings such a paint may have a thickness extending up to $\sim 100 \mu\text{m}$. Thus, a diverse range of
23 surface coatings and other bulk materials could represent considerable reservoirs. Uncertainties
24 in mass diffusivity and mass accommodation for these surface materials contribute to
25 uncertainties in equilibrium timescales. See Section S6 for parameters and calculations.

26

Tables**Table S1.** Overview of Gas-Phase Samples with Home Conditions and Observed Abundances of CH/CHO₁/CHO₂ Compounds

Date	Time	In/Out	Windows	AER (hr ⁻¹)	CH ($\frac{\mu g}{m^3}$)	CHO ₁ ($\frac{abund}{L}$)	CHO ₂ ($\frac{abund}{L}$)
8/4/2018	8:00	Indoor	Closed	<u>0.202</u>	119.61	476262.96	197940.92
8/4/2018	12:00	Indoor	Closed	0.284	*	*	*
8/5/2018	8:00	Indoor	Open	0.623	210.12	923704.5	428970.79
8/8/2018	8:00	Indoor	Closed	0.164	†	†	†
8/8/2018	12:00	Indoor	Closed	0.265	53.53	209192.52	79262.59
8/9/2018	8:00	Indoor	Open	0.427	†	†	†
8/9/2018	12:00	Indoor	Open	0.476	178.41	802357.17	425229.25
8/10/2018	8:00	Indoor	Closed	<u>0.292</u>	275.84	959785.08	647821.63
8/10/2018	10:00	Indoor	Closed	<u>0.292</u>	*	*	*
8/10/2018	12:00	Indoor	Open	<u>0.424</u>	110.87	227648.58	110628.52
8/10/2018	14:00	Indoor	Open	<u>0.401</u>	52.62	197929.25	80976.83
8/10/2018	16:00	Indoor	Open	<u>0.379</u>	*	*	*
8/10/2018	18:00	Indoor	Closed	<u>0.306</u>	†	†	†
8/4/2018	8:00	Outdoor	Closed	<u>0.202</u>	13.02	28438.31	20444.41
8/4/2018	12:00	Outdoor	Closed	0.284	17.69	74809.61	4846.82
8/5/2018	12:00	Outdoor	Open	0.945	*	*	*
8/6/2018	8:00	Outdoor	Closed	0.197	8.16	25943.88	438.44
8/6/2018	12:00	Outdoor	Closed	0.381	11.85	17485.45	161.23
8/8/2018	8:00	Outdoor	Closed	0.164	*	*	*
8/8/2018	12:00	Outdoor	Closed	0.265	18.59	61076.25	204.56
8/9/2018	8:00	Outdoor	Open	0.427	3.46	10409.14	159.14
8/9/2018	12:00	Outdoor	Open	0.476	3.39	12416.26	371.01
8/10/2018	8:00	Outdoor	Open	<u>0.292</u>	2.35	1090.7	131.81
8/10/2018	12:00	Outdoor	Open	<u>0.413</u>	3.75	901.26	25.03

	CH ($\frac{\mu g}{m^3}$)	CHO ₁ ($\frac{abund}{L}$)	CHO ₂ ($\frac{abund}{L}$)
Indoor Avg.	139.7	542411.4	281547.2
Outdoor Avg.	9.1	25841.2	2975.8
I/O Ratio	15.3	21.0	94.6
Indoor SD	77.3	346485.0	221316.5
Outdoor SD	6.4	25906.0	3728.7
t-score	4.46	3.94	3.33
P-value	0.001	0.004	0.008

Underlined air exchange rates were not measured via CO₂ spike as it was throughout the rest of the experiment. These were instead estimated by tracer measurements (OFT) under similar conditions.

* APCI values not provided because QTOF data was collected in dedicated MS/MS mode, not TOF mode, which affected the observed abundance and making those few samples incompatible for this analysis.

† Major saturation issue observed in sample and thus excluded.

A one-tailed t-test was used, with the null hypothesis that $\mu_{\text{indoor}} = \mu_{\text{outdoor}}$ for CH, CHO₁, and CHO₂. Heteroscedasticity (unequal variance) was assumed. The P-values are in bold because their results are statistically significant.

Table S2. Response factors for CH compounds measured via GC-APCI-TOF-MS

C# \ DBE	0	1	2	3	4	5	6	7	8	9
10	4.47E-04	7.63E-05	1.50E-06		8.99E-07	1.04E-07		3.01E-07		
11	1.86E-05	3.17E-06	4.98E-08		4.22E-07	3.05E-07		3.45E-07		
12	3.55E-05	6.16E-05	5.06E-07		2.92E-07	2.24E-07	4.69E-08	2.50E-07	1.87E-07	
13	3.13E-05	1.90E-05	1.77E-07		2.06E-07	1.93E-07	1.25E-07	2.40E-07	1.56E-07	1.48E-07
14	2.76E-05	2.15E-05	2.27E-07		1.51E-07	1.65E-07	1.17E-07	1.11E-07	1.15E-07	8.99E-08
15	3.40E-05	1.73E-05	1.87E-07		<u>8.66E-08</u>	1.32E-07	9.12E-08	9.97E-08	9.88E-08	6.33E-08
16	2.61E-05	1.98E-05	2.21E-07		1.37E-07	9.82E-08	7.20E-09	1.05E-07	9.20E-09	6.84E-08
17	7.86E-06	1.18E-05	1.69E-07		1.10E-07	7.60E-08	6.24E-08	9.50E-08	7.71E-08	5.60E-08
18	2.36E-06	6.91E-06	1.47E-07		9.43E-08	6.50E-08	6.13E-08	8.81E-08	8.16E-08	5.21E-08
19	2.94E-06	5.38E-06	1.40E-07		1.11E-07	7.35E-08	1.02E-07	1.15E-07	7.46E-08	5.50E-08
20	8.28E-07	3.58E-06	1.15E-07	9.21E-07	9.54E-08	<u>3.05E-08</u>	5.95E-08	8.95E-08	5.38E-08	5.26E-08
21	7.99E-07	2.53E-06	9.38E-08	7.96E-07	1.04E-07	5.90E-08	1.29E-07	2.64E-07	4.84E-08	4.97E-08
22	6.13E-07	1.94E-06	7.23E-08	6.16E-07	9.54E-08	4.57E-08	4.51E-08	7.30E-08	3.11E-08	3.57E-08
23	4.34E-07	1.56E-06	6.28E-08	5.88E-07	8.52E-08	4.55E-08	3.82E-08	6.94E-08	2.63E-08	3.84E-08
24	3.94E-07	1.32E-06	5.45E-08	5.36E-07	7.82E-08	4.21E-08	3.44E-08	3.06E-08	2.71E-08	1.90E-08
25	3.19E-07	1.09E-06	5.11E-08	5.73E-07	7.83E-08	4.32E-08	<u>2.07E-08</u>	2.46E-08	2.60E-08	
26	3.42E-07	1.01E-06	4.90E-08	5.96E-07	8.07E-08	4.08E-08	3.16E-08	1.95E-08	2.07E-08	
27	2.71E-07	9.11E-07	4.65E-08	6.25E-07	1.24E-07	4.38E-08	2.02E-08	1.39E-08	3.06E-08	3.04E-08
28	2.84E-07	9.14E-07	4.66E-08	6.35E-07	1.45E-07	4.66E-08	3.87E-08	5.14E-08	3.69E-08	3.55E-08
29	3.52E-07	9.81E-07	4.89E-08	6.88E-07	1.78E-07	6.09E-08	4.28E-08	5.59E-08	4.02E-08	4.18E-08
30	3.16E-07	1.02E-06	5.41E-08	7.99E-07	1.67E-07	9.47E-08	1.66E-08	<u>1.52E-08</u>	4.71E-08	5.24E-08
31	4.46E-07	1.28E-06	6.17E-08	9.00E-07	1.62E-07	1.06E-07	8.66E-08	9.64E-08	6.28E-08	6.49E-08
32	4.73E-07	1.83E-06	8.73E-08	1.54E-06	2.40E-07	1.41E-07	1.13E-07	1.31E-07	8.24E-08	8.76E-08

Table S2. (continued)

C# \ DBE	10	11	12	13	14	15
10						
11						
12						
13						
14	6.16E-08					
15	1.29E-07					
16	6.53E-08	7.55E-08	4.09E-08			
17	7.14E-08	9.12E-08	8.48E-08			
18	5.74E-08	6.69E-08	8.84E-08	1.61E-07		
19	5.18E-08	6.80E-08	7.05E-08	1.51E-07		
20	4.99E-08	5.84E-08	6.05E-08	8.34E-08	3.76E-08	1.15E-07
21	4.68E-08	5.30E-08	5.00E-08	6.95E-08	6.11E-08	3.01E-07
22	4.30E-08	4.54E-08	5.66E-08	6.94E-08	3.73E-08	1.28E-07
23	3.22E-08	3.42E-08	3.91E-08	4.73E-08	3.81E-08	1.26E-07
24	2.92E-08	2.78E-08	3.44E-08	4.05E-08	6.76E-08	
25	1.99E-08	2.69E-08	3.32E-08	3.93E-08	5.36E-08	
26	0.00E+00	2.25E-08	5.97E-08	6.22E-08		
27	3.57E-08	4.48E-08	6.85E-08	7.72E-08	4.11E-08	4.99E-08
28	4.32E-08	4.90E-08	7.97E-08	9.05E-08	4.39E-08	5.64E-08
29	5.10E-08	6.03E-08	9.62E-08	1.24E-07	5.54E-08	6.99E-08
30	6.26E-08	7.98E-08	1.40E-07	1.49E-07	7.12E-08	1.03E-07
31	7.75E-08	9.84E-08	1.35E-07	1.57E-07	8.83E-08	1.62E-07
32	1.06E-07	1.53E-07	2.13E-07	2.29E-07	1.38E-07	1.86E-07

Values are in ng/ion abundance. Abundances are integrated over integration bounds set based on the Macondo crude oil standard and the sample data to include all compounds with the same molecular formula (see Khare et al. 2019). The m/z used for DBE 4+ was $[M+H]^+$ and the DBE 0-3 reflects likely ionization endpoints for alkanes and cycloalkanes. Specifically, DBE 0-2 were run assuming $[M-H]^+$ ionization and DBE 3 was quantified using M^+ . CH response factors were obtained by running a five-point standard calibration curve on previously speciated and quantified Macondo crude oil.⁶ To account for drift between the time of the Macondo

calibration and the period of sample and single standard analysis, response factors were cross-compared and adjusted as necessary; values in bold were calculated by comparing values obtained in GC-EIMS calibrations with the signal from APCI. Underlined values represent terpenes, which have adjusted response factors because of a likely difference in ionization efficiency, most pronounced for monoterpenes.

Similar response factor matrices for CHO₁ and CHO₂ were not calculated for this work because of difficulty in translating response factor determinations from CH to CHO compounds that were concentrated in a higher volatility range in this study.

Table S3A. CH Indoor-Outdoor Emission Rate with Windows Open, [mg hr⁻¹] (Total (average): 28.8 mg hr⁻¹)

C#\DBE	0	1	2	3	4	5	6	7	8	9
10	0.381	0.497	12.14		3.663	0.197		0.051		
11	0.19	0.023	0.014		0.111	0.049		0.047		
12	0.224	0.14	0.062		0.044	0.059	0.012	0.077	0.013	
13	0.234	0.005	0.015		0.13	0.051	0.02	0.089	0.029	0.001
14	0.462	0.371	0.027		0.025	0.066	0.03	0.024	0.015	0.018
15	0.85	0.467	0.034		0.234	0.125	0.038	0.025	0.013	0.003
16	1.274	0.927	0.04		0.082	0.049	0.003	0.033	0.002	0.003
17	1.059	0.706	0.029		0.069	0.043	0.023	0.026	0.009	0.002
18	0.377	0.435	0.027		0.057	0.037	0.024	0.019	0.011	0.004
19	0.316	0.284	0.02		0.054	0.04	0.023	0.031	0.006	0.002
20	0.081	0.152	0.015	0.066	0.037	0.013	0.019	0.02	0.004	0.001
21	0.062	0.127	0.008	0.029	0.022	0.017	5E-04	0.008	0.003	5E-04
22	0.047	0.094	0.005	0.015	0.016	0.009	0.003	0.006	0.001	2E-04
23	0.027	0.051	0.003	0.012	0.01	0.005	0.002	0.006	4E-04	2E-04
24	0.018	0.028	0.002	0.009	0.006	0.003	0.002	0.001	4E-04	1E-04
25	0.011	0.013	1E-03	0.006	0.004	0.002	3E-04	3E-04	2E-04	
26	0.012	0.01	6E-04	0.003	0.003	0.001	7E-04	3E-05	2E-04	
27	0.007	0.007	4E-04	0.003	0.003	0.001	3E-04	3E-04	2E-04	9E-05
28	0.004	0.004	3E-04	0.002	0.002	8E-04	3E-04	2E-04	1E-04	6E-05
29	0.004	0.004	4E-04	0.003	0.003	1E-03	6E-04	3E-04	7E-05	2E-05
30	0.005	0.01	5E-04	0.005	0.002	0.001	2E-04	4E-05	8E-05	3E-05
31	0.005	0.005	2E-05	0.001	2E-05			1E-04	4E-05	2E-05
32	0.001									

Note: in all of Table S3, missing values are where either insufficient signal was observed, a response factor was unavailable, or a compound was structurally infeasible/unlikely (e.g. low carbon numbers with high DBEs).

Table S3A. (continued)

C#\DBE	10	11	12	13	14	15
10						
11						
12						
13						
14	5E-04					
15	0.007					
16	0.003	8E-04				
17	0.004	0.002	6E-04			
18	0.004	9E-04	4E-04	4E-05		
19	4E-04	4E-04	3E-04	3E-04		
20	2E-04	1E-04	2E-04	1E-04	8E-05	
21	1E-04	7E-05	5E-05	8E-05	1E-04	1E-04
22	5E-05	5E-05	1E-04	2E-04	9E-05	1E-04
23	9E-05	8E-05	3E-05	4E-05	3E-05	1E-04
24	9E-05	1E-05	1E-05	6E-05	2E-04	
25	2E-04	1E-05	2E-05	1E-05	2E-05	
26		1E-05	3E-05	6E-05		
27	2E-04	3E-05	1E-05	2E-05	5E-07	2E-06
28	4E-05	6E-05	2E-05	1E-05	6E-06	3E-06
29	2E-05	4E-06	1E-05	9E-06	5E-06	7E-07
30	2E-05	6E-06	2E-06	8E-05	6E-06	1E-06
31	3E-06		8E-07	1E-05		2E-05
32			2E-06	2E-06		1E-06

Table S3B. CH Indoor-Outdoor Emission Rate with Windows Closed, [mg hr⁻¹] (Total (average): 12.9 mg hr⁻¹)

C#\DBE	0	1	2	3	4	5	6	7	8	9
10	0.286	0.342	7.405		1.103	0.092		0.006		
11	0.08	0.011	0.007		0.06	0.029		0.019		
12	0.125	0.076	0.039		0.025	0.038	0.007	0.055	0.003	
13	0.115	0.003	0.008		0.087	0.037	0.011	0.033	0.013	6E-04
14	0.318	0.16	0.014		0.009	0.035	0.012	0.015	0.01	0.007
15	0.634	0.215	0.015		0.142	0.075	0.022	0.014	0.009	0.002
16	0.546	0.381	0.021		0.045	0.03	0.002	0.018	9E-04	0.002
17	0.595	0.368	0.014		0.04	0.024	0.014	0.012	0.005	0.001
18	0.188	0.225	0.014		0.032	0.023	0.015	0.012	0.007	0.002
19	0.162	0.158	0.011		0.032	0.024	0.007	0.019	0.003	9E-04
20	0.039	0.077	0.008	0.015	0.021	0.007	0.011	0.013	0.002	7E-04
21	0.025	0.044	0.003	0.004	0.011	0.006	2E-04	0.001	0.002	3E-04
22	0.012	0.017	0.001		0.005	0.003	3E-04	0.003	5E-04	8E-05
23	0.001		3E-04		0.002	8E-04	4E-04	0.003	1E-04	5E-05
24								9E-05	3E-05	
25										
26								3E-06		
27										
28										
29										
30										4E-08
31										
32										

Table S3B. (continued)

C#\DBE	10	11	12	13	14	15
10						
11						
12						
13						
14	3E-04					
15	0.005					
16	0.002	6E-04				
17	0.001	9E-04	5E-04			
18	4E-04	3E-04	7E-04			
19	1E-04	2E-04	1E-04	1E-04		
20	6E-05	8E-05	4E-05	5E-05	6E-05	2E-05
21	3E-05	6E-05	2E-05	4E-05	7E-05	2E-04
22	1E-05	2E-05	6E-05	6E-05	5E-05	7E-05
23	4E-05	3E-05	2E-05	1E-05	2E-06	7E-05
24	2E-05		4E-06	3E-05	6E-05	
25	4E-05	2E-07	9E-06	3E-06	1E-05	
26						
27	1E-04		4E-06	3E-06		2E-07
28	8E-06			3E-06	1E-06	2E-06
29			1E-05	9E-07	3E-06	9E-07
30	1E-06		5E-06	9E-05	2E-08	
31	2E-06		2E-06	1E-05	5E-07	1E-05
32	6E-07		2E-06	3E-06	2E-06	

Table S3C. CHO₁ Indoor-Outdoor Emission Rate with Windows Open, [abund hr⁻¹] (Total (average): 1.2E11 abund hr⁻¹)

C#\DBE	0	1	2	3	4	5	6	7	8	9
4	2.8E+06	8.6E+08	6.2E+08	3.8E+08	1.3E+05		9.8E+03			
5	4.4E+05	5.5E+08	4.6E+08	2.8E+08	1.1E+08	1.4E+06				
6	2.2E+06	2.4E+09	4.9E+09	1.3E+09	9.3E+08	9.7E+06	2.1E+04			
7	2.9E+05	4.1E+09	1.4E+09	1.5E+09	1.4E+09	1.1E+10	1.6E+09		2.4E+05	1.2E+06
8	5.7E+07	3.9E+09	3.6E+09	3.1E+09	7.2E+08	8.3E+09	3.5E+08	3.8E+06	2.9E+06	2.2E+06
9	4.3E+05	5.8E+09	2.0E+09	4.5E+09	7.1E+08	2.5E+09	6.4E+08	6.9E+07	4.5E+06	9.6E+06
10	2.6E+06	2.4E+09	2.8E+09	8.1E+09	3.2E+09	3.0E+09	6.4E+08	8.5E+07	7.1E+06	1.6E+07
11		1.6E+09	5.0E+08	3.4E+08	1.1E+08	1.4E+09	8.7E+08	1.1E+08	1.5E+07	1.6E+07
12	2.4E+06	1.2E+09	3.4E+08		9.3E+07	2.9E+08	2.1E+08	1.1E+08	4.1E+08	1.5E+07
13	5.0E+06			1.0E+09	5.9E+08	2.6E+08	3.7E+08	9.1E+07	3.7E+07	5.1E+09
14	5.9E+06			2.4E+08	7.0E+08	2.5E+08	2.2E+08	7.1E+07	4.8E+07	2.1E+08
15	1.8E+06				7.4E+08	7.7E+08	1.3E+09	1.1E+08	2.8E+07	6.9E+07
16	5.9E+08				2.6E+09	3.6E+08	1.4E+08	8.2E+07	2.0E+07	4.1E+07
17					5.8E+07	3.4E+08	9.8E+07	7.2E+07	1.6E+08	4.1E+07
18	5.9E+07				4.6E+07	1.5E+08	3.8E+08	8.8E+07	2.8E+07	3.6E+07
19					4.9E+07	1.0E+08	9.7E+07	5.8E+07	2.2E+07	3.0E+07
20	1.7E+07				5.5E+07	9.4E+07	1.1E+08	4.9E+07	1.6E+07	6.9E+06
21	1.8E+06				2.1E+07	2.0E+07	2.0E+07	1.2E+07	2.2E+07	3.8E+06
22	9.2E+05				1.7E+07	2.3E+07			7.0E+06	2.6E+06
23	3.0E+04			1.6E+07	8.5E+06	9.6E+06	7.8E+06	6.7E+06	1.9E+06	1.6E+06
24	8.7E+05			1.4E+07	8.8E+06	7.5E+06	6.6E+06	6.2E+06	1.3E+06	2.3E+06
25		1.4E+07	1.4E+07	8.7E+06	3.8E+06	3.3E+06	3.8E+06	1.2E+06	5.2E+05	4.3E+05

Table S3C. (continued)

C#\DBE	10	11	12	13	14	15
4						
5						
6						
7	-7.8E+03					
8	3.0E+05					
9	6.7E+05	1.4E+05	2.6E+05	4.4E+05		
10	6.1E+06	1.2E+06	2.9E+04	2.1E+05		
11		5.3E+05	6.4E+04	1.0E+05	1.4E+05	
12	4.6E+06	1.5E+06	2.5E+05	1.9E+05	6.5E+04	1.5E+04
13		7.3E+06	1.9E+06	1.3E+05	3.1E+05	6.4E+04
14	2.8E+07	4.8E+06	7.8E+06	4.0E+05	1.8E+05	-1.2E+06
15			4.4E+06	7.8E+06	4.5E+04	1.3E+05
16	5.6E+07	1.3E+07	3.1E+06	2.6E+06	6.5E+05	4.9E+05
17	1.9E+07	4.2E+07		8.1E+06	6.4E+05	4.6E+06
18	1.8E+07	1.5E+07			1.4E+06	9.2E+05
19	5.4E+06	9.2E+05	4.2E+07	1.6E+07	5.3E+06	1.0E+06
20	2.0E+06	1.5E+06	1.1E+07	1.8E+07	3.1E+06	5.0E+05
21	1.6E+06	7.7E+05	7.7E+06	6.5E+06	3.9E+06	6.2E+06
22	1.3E+06	7.8E+05	2.8E+06	2.4E+06	3.2E+06	
23	5.4E+06	6.1E+05	7.8E+05	5.6E+06	7.2E+05	8.6E+05
24	1.6E+06	2.6E+05	2.2E+05	9.9E+05	1.9E+06	1.5E+05
25	1.9E+05	1.8E+05	9.0E+04		6.1E+04	1.9E+04

Table S3D. CHO₁ Indoor-Outdoor Emission Rate with Windows Closed, [abund hr⁻¹] (Total (average): 5.6E10 abund hr⁻¹)

C#\DBE	0	1	2	3	4	5	6	7	8	9
4	2.0E+06	5.6E+08	3.6E+08	2.0E+08	9.9E+04					
5	1.1E+05	2.4E+08	2.3E+08	1.2E+08	8.1E+07	7.5E+05				
6	2.6E+05	1.0E+09	2.4E+09	4.5E+08	4.6E+08	6.0E+06		4.0E+03		
7	-1.2E+04	1.8E+09	5.7E+08	6.2E+08	5.7E+08	5.8E+09	7.3E+08		2.1E+05	6.7E+05
8	4.1E+07	1.7E+09	1.5E+09	1.5E+09	2.6E+08	2.5E+09	3.2E+07	2.2E+06	8.0E+05	3.9E+05
9	2.9E+04	3.6E+09	8.8E+08	1.9E+09	2.9E+08	9.9E+08	2.0E+08	2.9E+07	1.0E+06	3.1E+06
10	1.0E+06	1.5E+09	1.5E+09	3.9E+09	1.2E+09	1.4E+09	2.6E+08	3.1E+07	2.3E+06	6.9E+06
11		1.7E+08	2.3E+08		6.6E+07	7.2E+08	5.1E+08	5.4E+07	4.0E+06	8.0E+06
12	7.4E+05	6.4E+08				1.5E+08	9.6E+07	4.5E+07	2.5E+08	7.8E+06
13	7.0E+05			5.8E+08	4.0E+08	1.3E+08	2.3E+08	4.1E+07	1.9E+07	3.1E+09
14	9.5E+05				5.4E+08	1.2E+08	1.3E+08	3.7E+07	2.2E+07	2.0E+08
15	6.9E+05				4.6E+08	4.1E+08	7.9E+08	6.2E+07	9.7E+06	4.3E+07
16	3.4E+08				1.4E+09	1.2E+08	6.0E+07	3.8E+07	6.1E+06	2.5E+07
17						1.7E+08	4.7E+07	3.8E+07	1.8E+08	2.1E+07
18	3.4E+07					7.4E+07	2.2E+08	4.1E+07	9.2E+06	1.1E+07
19					2.6E+07	5.8E+07	4.5E+07	3.2E+07	8.9E+06	3.8E+07
20	1.0E+07				2.9E+07	4.9E+07	5.8E+07	2.1E+07	5.5E+06	1.6E+06
21	-6.2E+03				9.1E+06		8.5E+06	5.2E+06	4.4E+07	8.4E+05
22	3.3E+05				5.1E+06	9.5E+06			1.3E+06	-1.4E+05
23					1.7E+06	1.1E+06	1.3E+06		5.3E+05	1.2E+05
24	3.8E+05			-4.8E+06	-3.2E+05	-2.8E+05		-6.8E+05	4.8E+04	1.4E+05
25		-3.3E+06	-2.4E+06	-3.5E+06	-2.8E+06	-2.2E+06	-3.8E+05	-8.1E+04	3.5E+04	1.2E+05

Table S3D. (continued)

C#\DBE	10	11	12	13	14	15
4						
5						
6						
7						
8	2.0E+04					
9	1.3E+05	6.0E+04		5.0E+04		
10	3.1E+06	8.2E+05		1.7E+04		
11		1.5E+05		1.6E+04	2.9E+04	
12	2.3E+06	5.8E+05	1.6E+05	7.5E+04	1.2E+04	3.8E+03
13	3.4E+07	3.3E+06	6.7E+05	1.1E+04	1.1E+05	1.3E+04
14	1.3E+07	2.0E+06	3.2E+06	8.8E+04	4.4E+04	
15	7.8E+07	5.9E+07	3.6E+05	2.9E+06	1.1E+05	2.5E+04
16	2.7E+07	5.2E+07	6.8E+06	8.4E+05	3.6E+05	9.1E+04
17	5.2E+06	1.3E+07		3.0E+06	1.3E+05	4.7E+05
18	6.0E+06	2.1E+06		1.8E+08	4.1E+05	1.1E+05
19	1.6E+06	1.0E+05	1.5E+07	1.8E+07	3.9E+06	4.4E+05
20	3.1E+05	2.2E+05	1.9E+06	4.1E+06	3.0E+06	1.8E+05
21	3.3E+05	1.7E+05	1.5E+06	1.1E+06	3.7E+06	4.6E+06
22	1.5E+05	1.3E+05	5.3E+05	4.3E+05	1.5E+06	1.2E+05
23	6.5E+05	2.5E+05	6.0E+04	3.4E+05	4.2E+05	8.3E+06
24	1.7E+05	7.7E+04	3.6E+04	1.6E+05	2.5E+05	1.1E+06
25	7.9E+04	9.6E+04	4.0E+04		1.9E+05	3.7E+05

Table S3E. CHO₂ Indoor-Outdoor Emission Rate with Windows Open, [abund hr⁻¹] (Total (average): 1.0E11 abund hr⁻¹)

C#\DBE	0	1	2	3	4	5	6	7	8	9
4	1.6E+08	1.9E+09	1.1E+09	1.2E+08	7.5E+06	2.4E+04				
5	4.1E+07	4.0E+09	3.7E+09	5.8E+08	1.7E+10	8.3E+08	2.2E+05		8.1E+04	
6	1.2E+09	1.7E+10	1.9E+09	1.7E+09	3.6E+09	3.5E+07	1.8E+05	4.0E+04		8.0E+03
7	1.9E+08	1.3E+09	6.8E+08	1.2E+09	3.7E+08		1.4E+07	2.5E+05	2.2E+06	
8	1.3E+07	3.0E+09	1.6E+09	3.6E+08	2.0E+08			1.5E+07	4.7E+06	6.7E+05
9	3.0E+06	6.7E+08	1.0E+09	5.3E+08	3.2E+08				1.2E+07	7.1E+06
10	3.1E+06	5.2E+08		4.7E+08	4.6E+08	2.1E+08	5.9E+08		4.2E+06	1.1E+06
11	5.7E+06					3.3E+08	9.4E+07	1.6E+07	-1.9E+08	6.3E+07
12	2.7E+06		1.7E+10				9.7E+07	1.4E+07	2.1E+07	2.0E+06
13	1.0E+06				2.2E+08	3.3E+07	1.8E+07	5.3E+07	2.1E+07	2.9E+07
14	9.4E+06	2.5E+09				4.2E+08	3.2E+07	2.1E+07	1.1E+07	1.9E+07
15	2.6E+06					4.0E+09	8.8E+07	3.0E+07	1.6E+07	2.7E+07
16	8.2E+06				1.1E+08	1.9E+08	2.9E+07	2.1E+07	1.9E+07	1.1E+07
17	3.0E+05	1.4E+09				7.9E+07	4.2E+07	2.6E+07	1.6E+07	6.9E+06
18	2.2E+04					3.8E+07	7.3E+07	1.3E+08	2.4E+07	1.5E+07
19						7.7E+07	8.6E+07	2.8E+07	1.2E+07	6.5E+06
20	-1.7E+04				1.6E+07	3.2E+07	2.6E+07	3.1E+07	1.3E+07	1.0E+05
21					1.3E+07	2.0E+07	1.5E+07	9.2E+05	-1.3E+05	-6.7E+05
22	1.5E+04				8.4E+06	9.2E+06	-3.9E+05	-1.4E+05	-7.6E+03	
23					1.6E+06	-4.8E+05	-2.4E+04	-7.6E+03		
24	7.6E+03		3.2E+07	2.5E+05	-1.8E+04	-3.4E+04	3.9E+05			
25		2.3E+07	-1.2E+06	-5.3E+04						

Table S3E. (continued)

C#\DBE	10	11	12	13	14	15
4						
5						
6						
7	9.9E+03					
8	4.4E+05		9.0E+03	1.5E+05		1.8E+04
9	3.8E+06	2.4E+05		1.5E+04		
10	5.7E+06	4.8E+04		1.3E+05	8.6E+03	
11	3.0E+06	8.5E+05	1.6E+07	1.4E+05	2.7E+05	
12	1.3E+06	6.3E+05	1.1E+05		1.4E+05	7.1E+03
13		2.3E+07	3.7E+05	3.5E+05	2.9E+04	2.5E+04
14			2.9E+06	9.1E+04	1.6E+04	7.6E+03
15	6.3E+07		1.7E+06	2.3E+05	4.0E+05	3.8E+05
16	2.8E+07		1.2E+06	1.9E+06	2.4E+05	-3.5E+06
17	7.6E+06	2.5E+07		-2.8E+06		-2.1E+04
18	1.7E+07	1.6E+07			-5.4E+04	1.2E+05
19	8.1E+05	-2.6E+05	-1.6E+07	-9.0E+06	1.6E+05	
20	-5.4E+04	-2.5E+04			-1.4E+05	-1.2E+05
21	-6.2E+04					
22						
23						-2.6E+04
24						
25						

Table S3F. CHO₂ Indoor-Outdoor Emission Rate with Windows Closed, [abund hr⁻¹] (Total (average): 4.8E10 abund hr⁻¹)

C#\DBE	0	1	2	3	4	5	6	7	8	9
4	8.0E+07	7.3E+08	4.7E+08	3.6E+07	4.2E+06			4.2E+03		
5	1.5E+07	2.1E+09	1.3E+09	2.3E+08	1.0E+10	4.1E+08	6.9E+04		2.8E+04	
6	4.9E+08	8.6E+09	6.8E+08	8.7E+08	1.4E+09	1.2E+07	1.2E+05	1.7E+04		
7	9.2E+07	5.6E+08	2.7E+08	4.5E+08	1.4E+08		1.8E+07	4.6E+04	1.1E+06	
8	6.0E+06	-5.6E+08	7.3E+08	6.1E+07	6.4E+07			7.3E+06	1.1E+06	1.8E+05
9	1.8E+06		5.4E+08	3.0E+08	1.6E+08				4.4E+06	3.1E+06
10	1.1E+06	5.8E+08		3.0E+08	3.0E+08	1.4E+08	3.2E+08		3.4E+06	1.2E+06
11	3.5E+06					2.3E+08	4.6E+07	1.1E+07	3.0E+08	1.5E+07
12	2.1E+06	3.5E+08	8.9E+09			5.0E+07	7.0E+07	1.1E+07	2.8E+07	6.0E+06
13	2.6E+06				1.6E+08	3.7E+07	2.5E+07	4.0E+07	2.0E+07	7.0E+07
14	1.2E+07	1.5E+09				3.5E+08	1.8E+07	1.4E+07	4.5E+06	1.1E+07
15	3.7E+06				2.5E+08	2.2E+09	5.7E+07	1.7E+07	5.9E+06	1.7E+06
16	5.9E+06					1.3E+08	1.8E+07	1.2E+07	8.5E+06	2.9E+06
17	1.1E+05					5.5E+07	1.5E+07	1.5E+07	6.9E+06	2.0E+06
18	-4.4E+04					2.5E+07	2.1E+07	6.3E+07	9.9E+06	2.1E+06
19	1.8E+06					3.3E+07	3.8E+07	1.4E+07	5.1E+06	2.3E+06
20	-1.1E+04					2.3E+07	1.2E+07	1.6E+07	3.4E+06	1.0E+05
21	3.3E+04				7.9E+06	8.7E+06	5.5E+06	5.4E+06	8.1E+05	-5.7E+05
22					3.4E+06	1.9E+06	8.9E+06	1.1E+06	-1.7E+05	-1.1E+05
23					9.2E+05	2.3E+06	-2.7E+05	-1.5E+05	-1.6E+04	-1.1E+04
24			-7.1E+06	-5.5E+05	5.6E+04	-9.1E+04	-5.0E+06	-3.7E+05	-4.7E+04	-1.3E+04
25		-4.8E+06	-8.4E+05	-7.9E+05	-6.9E+05	-5.5E+05	-1.9E+05	-7.8E+04	-1.2E+04	

Table S3F. (continued)

C#\DBE	10	11	12	13	14	15
4						
5						
6						
7						
8	5.6E+05		2.0E+04	1.3E+05		
9	2.9E+06	2.0E+05				
10	2.1E+06	1.2E+05		7.0E+04		
11	1.2E+06	1.1E+05	8.4E+06	3.1E+04	5.8E+04	
12	5.0E+05	4.9E+05	4.8E+04			
13	2.3E+07	8.5E+06	5.6E+04	4.9E+04		3.4E+03
14	1.4E+08	1.9E+07	5.0E+05	5.2E+04	7.8E+03	
15	3.2E+07		2.7E+06	1.6E+07	2.3E+05	4.4E+04
16	1.5E+07		3.5E+07	8.3E+05	6.9E+04	-6.1E+05
17	1.6E+06	6.8E+06		8.5E+06	1.9E+05	7.9E+03
18	3.0E+06	2.8E+06			-2.7E+06	1.7E+05
19	4.4E+05	-5.0E+05	-1.9E+07	-7.3E+06	2.4E+05	-8.5E+05
20	2.7E+05	-5.4E+03	-2.2E+05	-6.5E+05	-3.0E+06	-6.1E+05
21	-1.0E+05	-6.1E+03	-3.2E+04	-5.0E+04	-1.1E+06	-2.1E+04
22	-2.9E+04	-1.3E+04	-5.9E+03	-1.1E+04	-6.3E+03	-3.8E+05
23	-1.9E+04	-5.7E+03	-5.5E+03	-1.1E+05	-6.4E+03	-1.2E+05
24	-2.7E+04	-1.2E+04	-4.3E+04	-5.5E+03		-2.4E+04
25	-3.6E+04	-6.0E+03	-5.0E+04	-6.3E+03		-1.7E+04

Table S4. Indoor/Outdoor Ratios of Compounds Observed via GC-EIMS

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Cyclobutane	25.22	45.53	103.09	2.26	0.67	3.27	Cycloalkane	8.7	41
Acetone	*	*	*	*	*	*	Carbonyl	8.7	46
Formic acid	91.13	32.00	83.67	2.61	0.44	5.89	Acid	8.6	86
Butane, 2,3-dimethyl-	2.14	3.23	2.15	0.67	0.83	1.24	Alkane	8.6	70
Methacrolein	2.35	2.55	0.82	0.32	0.76	0.89	Carbonyl	8.6	75
Siloanol, trimethyl-	4.54	7.53	3.52	0.47	0.76	0.52	Siloxane	8.6	86
Hexane	2.58	3.23	2.29	0.71	0.58	1.46	Alkane	8.6	72
Butanal	8.03	11.11	3.97	0.36	0.72	0.68	Carbonyl	8.5	41
Methyl ethyl ketone (MEK)	9.60	15.60	9.59	0.61	0.40	1.42	Carbonyl	8.5	82
Benzene, hexafluoro-	245.92	425.28	164.15	0.39	0.49	0.80	Tracer	8.5	186
Acetic acid	42.94	23.87	49.18	2.06	0.90	4.23	Acid	8.5	60
Pentane, 2,2-dimethyl- / Pentane, 2,4-dimethyl-	36.33	82.08	39.33	0.48	0.56	1.00	Alkane	8.5	57
Butane, 2,2,3-trimethyl-	11.63	122.01	0.98	0.01	0.39	0.01	Alkane	8.5	57
Toluene, octafluoro-	308.62	364.85	214.56	0.59	0.54	1.22	Tracer	8.4	217
Pentane, 3,3-dimethyl-	37.37	76.60	17.49	0.23	0.52	0.69	Alkane	8.4	71
Ethane, 1,2-dichloro-	24.91	69.36	9.61	0.14	0.53	0.38	Halogenated	8.4	62
Benzene	1.55	2.28	1.21	0.53	0.67	1.02	Aromatic	8.4	78
Hexane, 2-methyl-	31.56	53.31	16.63	0.31	0.55	0.77	Alkane	8.4	85
Hexane, 3-methyl-	12.47	29.33	9.92	0.34	0.58	1.02	Alkane	8.3	70
1-Butanol	15.48	12.69	64.47	5.08	2.28	5.73	Alcohol	8.3	56
Pentane, 2,2,4-trimethyl-	1.76	2.32	2.37	1.02	0.87	1.80	Alkane	8.3	99
Heptane	7.18	12.70	10.82	0.85	0.62	1.48	Alkane	8.2	71
Pentanal	51.09	36.10	42.30	1.17	0.61	1.99	Carbonyl	8.2	44

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
2,5-Dimethylfuran	3.57	3.76	4.78	1.27	0.69	2.62	Furanoid	8.2	96
Hexane, 2,2-dimethyl-	41.54	101.98	27.34	0.27	0.48	0.73	Alkane	8.1	57
Propanoic acid	24.24	11.32	25.97	2.29	1.02	4.18	Acid	8.1	74
Cyclohexane, methyl-	17.42	35.97	23.21	0.65	0.59	1.55	Cycloalkane	8.1	83
Hexane, 2,5-dimethyl-	10.96	17.52	9.61	0.55	0.60	1.07	Alkane	8.1	112
Hexane, 2,4-dimethyl-	9.17	16.02	7.01	0.44	0.57	0.75	Alkane	8.1	85
Cyclopentane, ethyl-	5.93	7.36	9.42	1.28	0.65	2.15	Cycloalkane	8.1	70
Hexane, 3,3-dimethyl-	9.77	8.09	6.87	0.85	0.37	1.30	Alkane	8.1	57
Cyclopentane, trimethyl-	7.14	4.55	15.03	3.30	0.69	8.81	Cycloalkane	8.0	112
Methyl isobutyl ketone	2.79	4.23	4.98	1.18	0.61	2.60	Carbonyl	8.0	100
Pentane, 2,3,4- trimethyl-	4.06	6.63	2.40	0.36	0.68	0.96	Alkane	8.0	71
Pentane, 2,3,3- trimethyl-	3.87	9.29	2.20	0.24	0.60	0.75	Alkane	8.0	99
Hexane, 2,3-dimethyl-	2.37	4.78	1.09	0.23	0.32	0.28	Alkane	8.0	114
Propylene glycol	45.38	89.83	32.71	0.36	0.48	0.60	Alcohol	8.0	45
Heptane, 2-methyl-	8.73	18.29	11.52	0.63	0.54	0.74	Alkane	7.9	57
Heptane, 4-methyl-	6.55	14.09	12.51	0.89	0.53	0.69	Alkane	7.9	71
Toluene	4.47	7.39	5.35	0.72	0.66	1.23	Aromatic	7.9	91
Branched C8 alkane	2.59	3.99	7.18	1.80	0.74	2.41	Alkane	7.9	85
1-Pentanol	89.13	141.34	47.78	0.34	0.64	0.41	Alcohol	7.9	42
Cyclopentane, 1,2,3- trimethyl-	4.59	8.81	3.07	0.35	0.52	0.72	Cycloalkane	7.9	57
Cyclohexane, 1,3- dimethyl-	19.05	57.87	4.61	0.08	0.43	0.26	Cycloalkane	7.9	97
Propanoic acid, 2- methyl-	19.94	15.02	18.16	1.21	1.37	1.53	Acid	7.8	73
2-Hexanone	14.84	26.68	26.45	0.99	0.63	1.68	Carbonyl	7.8	100

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
3-Hexanone, 2-methyl	8.54	11.17	*	*	0.18	*	Carbonyl	7.8	71
Octane	3.73	8.21	8.34	1.02	0.49	1.21	Alkane	7.8	114
Hexane, 2,4,4-trimethyl-	*	*	*	*	0.24	*	Alkane	7.8	72
Hexanal	102.76	98.97	47.12	0.48	0.61	0.58	Carbonyl	7.8	99
Tetrachloroethylene	135.31	962.26	85.53	0.09	0.60	0.21	Halogenated	7.7	166
Butanoic acid	20.31	15.71	23.81	1.52	0.75	2.56	Acid	7.7	60
Hexane, 2,3,5-trimethyl-	6.45	12.42	8.21	0.66	0.53	0.69	Alkane	7.7	85
Heptane, 2,2-dimethyl-	4.24	1.97	*	*	0.27	*	Alkane	7.7	
Cyclotrisiloxane, hexamethyl- (D3)	6.78	11.69	16.47	1.41	0.77	1.87	Siloxane	7.7	57
Butyl acetate	7.89	11.43	10.79	0.94	0.66	1.80	Ester	7.7	207
Heptane, 2,4-dimethyl-	17.39	37.02	32.31	0.87	0.55	0.81	Alkane	7.7	56
Heptane, 2,6-dimethyl-	6.37	14.58	4.29	0.29	0.53	0.54	Alkane	7.7	85
Heptane, 3,5/2,5-dimethyl-	11.07	23.77	4.41	0.19	0.53	0.47	Alkane	7.6	71
Heptane, 3,3-dimethyl-	4.77	4.09	2.67	0.65	0.72	1.13	Alkane	7.6	99
Cyclohexane, ethyl-	9.31	35.71	7.23	0.20	0.51	0.45	Cycloalkane	7.6	71
2,4-Dimethyl-1-heptene	7.12	18.18	15.78	0.87	0.42	0.53	Alkene	7.6	83
Furfural	109.68	170.37	75.05	0.44	0.70	1.37	Furanoid	7.6	43
C9 branched alkane	*	*	*	*	0.81	*	Alkane	7.6	96
2-Pentanone, 4-hydroxy-4-methyl-	*	*	*	*	1.41	*	Carbonyl	7.6	99

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Cyclohexane, 1,2,4-trimethyl-	10.53	44.18	6.43	0.15	0.35	0.21	Cycloalkane	7.5	101
Benzene, 1-chloro-3-(trifluoromethyl)-	34.30	43.74	7.77	0.18	0.63	0.60	Aromatic	7.5	69
Hexane, 2,3,4-trimethyl-	12.14	27.20	12.49	0.46	0.56	0.47	Alkane	7.5	180
Ethylbenzene	2.69	4.10	5.78	1.41	0.75	1.89	Aromatic	7.5	85
Heptane, 3,4-dimethyl- / Heptane, 4-ethyl-	8.65	17.18	4.91	0.29	0.57	0.50	Alkane	7.5	91
Heptane, 3-ethyl-	10.36	27.53	5.13	0.19	0.46	0.43	Alkane	7.5	57
Propylene glycol methyl ether acetate (PGMEA)	14.62	29.79	23.05	0.77	0.59	1.07	Ester	7.5	128
Xylenes, m&p-	2.83	4.56	6.05	1.33	0.75	1.69	Aromatic	7.5	87
Octane, 2-methyl-	6.05	1.43	33.15	23.20	0.67	*	Alkane	7.5	91
1-Hexanol	26.80	51.79	21.39	0.41	0.68	0.47	Alcohol	7.5	71
C9 cycloalkane	10.52	27.51	6.19	0.22	0.47	0.40	Cycloalkane	7.4	56
n-Butyl ether	43.09	96.41	55.17	0.57	0.53	1.04	Ether	7.4	126
C9 cycloalkane	17.83	53.23	8.95	0.17	0.48	0.39	Cycloalkane	7.4	126
C9 cycloalkane	15.09	77.39	8.57	0.11	0.51	0.20	Cycloalkane	7.4	126
3-Heptanone	11.57	15.36	318.57	20.74	0.78	25.22	Carbonyl	7.4	114
Cyclohexane, 1,1,2-trimethyl-	10.53	29.42	7.11	0.24	0.52	0.41	Cycloalkane	7.4	97
2-Heptanone	15.56	26.90	7.84	0.29	0.63	0.55	Carbonyl	7.4	58
Styrene	10.16	21.32	17.34	0.81	0.61	1.15	Aromatic	7.4	104
o-Xylene	2.20	3.56	5.64	1.58	0.81	2.01	Aromatic	7.3	91
Nonane	3.03	6.52	6.92	1.06	0.69	1.22	Alkane	7.3	128
Cyclohexanone	15.36	20.67	12.15	0.59	0.59	0.74	Cycloalkane	7.3	98
Pentanoic acid	41.60	31.22	34.23	1.10	0.63	2.09	Acid	7.3	60

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Heptanal	17.77	28.55	12.80	0.45	0.58	0.65	Carbonyl	7.3	96
Ethanol, 2-butoxy-	57.56	86.87	63.04	0.73	0.61	1.47	Glycol ether	7.2	87
Unidentified siloxane	44.29	42.02	383.16	9.12	2.40	7.32	Siloxane	7.2	177
C9 branched alkane	6.76	7.97	9.75	1.22	1.06	2.09	Alkane	7.2	57
Tricyclene	15.09	31.93	12.22	0.38	0.56	0.67	Terpene	7.1	93
C9 branched alkane	6.19	13.71	6.55	0.48	0.69	0.77	Alkane	7.1	71
Unidentified monoterpene	3.50	5.84	1.53	0.26	0.57	1.04	Terpene	7.1	93
C10 alkane (DBE = 2)	65.61	99.88	74.33	0.74	1.02	1.23	Cycloalkane	7.1	67
C9 branched alkane	16.80	53.45	9.82	0.18	0.49	0.55	Alkane	7.1	142
Cyclohexane, propyl-	16.87	38.14	7.44	0.20	0.58	0.54	Cycloalkane	7.1	83
Pinene, alpha-	21.27	27.09	17.75	0.66	0.67	2.46	Terpene	7.1	93
Octane, 2,6-dimethyl-	10.74	29.28	7.21	0.25	0.66	0.43	Alkane	7.1	57
2-Propanol, 1-butoxy-	159.01	281.53	228.81	0.81	0.64	1.88	Glycol ether	7.0	57
C9 branched alkane	9.73	21.10	7.67	0.36	0.62	0.72	Alkane	7.0	57
Camphene	40.51	64.18	46.94	0.73	0.61	1.10	Terpene	7.0	93
Benzene, propyl-	6.31	11.86	3.65	0.31	0.72	0.62	Aromatic	6.9	91
Octane, 4-ethyl-	32.19	73.30	20.61	0.28	0.58	0.57	Alkane	6.9	57
Benzene, 1-ethyl-4-methyl-	8.90	14.40	5.64	0.39	0.68	0.85	Aromatic	6.9	105
Benzene, 1-ethyl-3-methyl-	14.98	27.70	9.19	0.33	0.76	0.79	Aromatic	6.9	105
C9 branched alkane	14.72	45.81	7.73	0.17	0.46	0.38	Alkane	6.9	57
Furfural, 5-methyl-	65.87	69.81	149.99	2.15	0.69	3.93	Furanoid	6.9	110
C9 branched alkane	17.87	113.85	4.33	0.04	0.41	0.05	Alkane	6.9	57
Benzaldehyde	19.99	35.51	19.56	0.55	0.69	0.64	Aromatic	6.8	105
Benzene, tert-butyl-	22.90	35.12	22.49	0.64	0.64	1.03	Aromatic	6.8	134
Cyclotetrasiloxane, octamethyl- (D4)	24.80	64.24	46.47	0.72	0.60	0.82	Siloxane	6.8	207

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Unidentified terpene	2.12	2.61	0.93	0.36	0.90	1.86	Terpene	6.8	93
C10 branched alkane	95.44	497.05	61.83	0.12	0.34	0.24	Alkane	6.8	57
Pinene, beta-	20.71	26.48	25.68	0.97	0.71	3.19	Terpene	6.8	93
Benzene, (1-methylethenyl)-	3.03	4.27	10.17	2.38	0.71	2.39	Aromatic	6.8	118
5-Hepten-2-one, 6-methyl-	66.14	23.45	85.09	3.63	0.61	7.78	Alkene	6.7	126
Hexanoic acid	59.22	50.42	56.16	1.11	0.63	2.80	Acid	6.7	60
Myrcene	17.82	32.13	12.40	0.39	0.42	0.96	Terpene	6.7	136
Phenol	13.32	20.08	14.29	0.71	0.84	0.69	Aromatic	6.7	94
Furan, 2-pentyl-	39.47	77.90	281.39	3.61	0.52	4.19	Furanoid	6.7	81
Decane	3.51	6.94	6.68	0.96	0.59	1.35	Alkane	6.7	142
Benzene, 1,2,4-trimethyl-	2.52	3.94	6.06	1.54	0.77	1.87	Aromatic	6.7	105
Octanal	21.58	17.87	12.37	0.69	0.58	0.86	Carbonyl	6.6	43
Unidentified C9 Aromatic	10.67	21.77	*	*	0.69	*	Aromatic	6.6	119
3-Carene	70.02	114.10	40.84	0.36	0.56	1.11	Terpene	6.6	93
C11 branched alkane	42.01	64.44	27.06	0.42	0.64	0.88	Alkane	6.6	57
Isocineole	360.77	366.16	173.88	0.47	0.88	0.72	Terpene	6.6	154
Benzene, 1,3-dichloro-	16.84	34.35	12.63	0.37	0.67	0.89	Aromatic	6.6	146
o-Cymene	17.31	39.61	19.00	0.48	0.57	1.10	Terpene	6.6	119
C11 branched alkane	27.90	45.14	36.96	0.82	0.77	1.37	Alkane	6.5	142
Benzene, 1,2,3-trimethyl-	1.81	2.84	6.25	2.20	0.83	2.78	Aromatic	6.5	105
C11 branched alkane	10.57	6.98	46.27	6.63	0.54	10.88	Alkane	6.5	57
m-Cymene	17.60	23.92	31.54	1.32	0.71	1.83	Terpene	6.5	119
1-Hexanol, 2-ethyl-	39.87	52.97	34.99	0.66	0.64	0.88	Alcohol	6.5	98
Limonene	17.26	23.06	31.35	1.36	0.72	1.95	Terpene	6.5	68

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Eucalyptol	40.55	64.22	22.43	0.35	0.63	1.05	Terpene	6.5	154
Indane	4.80	7.59	5.63	0.74	0.71	1.27	Aromatic	6.4	118
Benzyl alcohol	47.03	71.69	68.56	0.96	0.52	0.98	Aromatic	6.4	107
Unidentified C9 Aromatic	6.03	10.11	5.33	0.53	0.64	1.28	Aromatic	6.4	119
C11 branched alkane	31.95	53.33	46.69	0.88	0.49	0.92	Alkane	6.4	57
Benzene, 1-methyl-3- propyl-	7.29	15.00	3.16	0.21	0.63	0.57	Aromatic	6.4	105
Benzaldehyde, 2- hydroxy-	18.95	24.76	15.12	0.61	0.66	1.31	Aromatic	6.4	122
Benzene, 1-ethyl-3,5- dimethyl-	9.08	14.96	6.97	0.47	0.61	1.04	Aromatic	6.4	119
Decane, 2-methyl-	33.95	55.09	27.40	0.50	0.67	0.98	Alkane	6.4	57
Caprolactone, gamma-	30.43	21.69	15.04	0.69	0.71	0.93	Ester	6.3	85
Decalin	20.76	42.48	13.36	0.31	0.59	0.64	Cycloalkane	6.3	138
Diethyl malonate	111.64	161.41	45.55	0.28	0.46	0.55	Ester	6.3	133
Benzene, 1-methyl-4- propyl-	7.28	10.74	8.10	0.75	1.55	1.77	Aromatic	6.3	105
C11 branched alkane	17.79	48.88	12.32	0.25	0.75	0.26	Alkane	6.3	142
7-Octen-2-ol, 2,6- dimethyl-	211.15	300.38	79.26	0.26	0.77	0.69	Alkene	6.3	59
Acetophenone	7.53	14.22	36.57	2.57	0.72	2.78	Aromatic	6.3	105
Heptanoic acid	31.19	31.70	74.31	2.34	0.66	4.08	Acid	6.3	60
Tolualdehyde	2.35	3.72	5.11	1.37	0.89	1.83	Aromatic	6.3	119
Unidentified C9 Aromatic	4.09	12.97	1.19	0.09	0.84	0.17	Aromatic	6.2	119
Decane, 3-methyl-	28.72	54.15	*	*	0.39	*	Alkane	6.2	57
C11 branched alkane	8.75	22.05	5.10	0.23	0.41	0.49	Alkane	6.2	57
Unidentified C9 Aromatic	8.40	19.19	4.12	0.21	0.58	0.64	Aromatic	6.2	119

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Undecane	5.39	8.11	7.84	0.97	0.87	1.93	Alkane	6.2	156
Unidentified C10 Aromatic (DBE = 5)	7.48	10.89	20.38	1.87	0.73	*	Aromatic	6.2	117
Linalool	108.23	346.37	67.93	0.20	0.38	0.43	Terpene	6.1	93
Nonanal	44.71	56.86	32.07	0.56	0.58	1.16	Carbonyl	6.1	114
6-Methyl-3,5- heptadiene-2-one	67.20	106.47	170.91	1.61	0.80	3.71	Alkene	6.1	109
C12 branched alkane	8.07	*	0.95	*	0.51	*	Alkane	6.1	99
C12 branched alkane	6.36	*	*	*	0.65	*	Alkane	6.1	57
Cyclopentasiloxane, decamethyl- (D5)	39.16	89.33	17.29	0.19	0.64	0.40	Siloxane	6.0	73
Hexanoic acid, 2- ethyl-	79.96	76.78	7.41	0.10	0.68	0.10	Acid	6.0	88
Benzene, 1,2,4,5- tetramethyl-	1.06	1.60	5.03	3.13	0.89	4.77	Aromatic	6.0	119
Fenchol	115.14	83.13	372.33	4.48	0.57	1.10	Terpene	6.0	81
Unidentified terpene	7.85	8.24	5.63	0.68	0.59	0.89	Terpene	6.0	108
Unidentified carbonyl	88.39	168.65	44.82	0.27	0.63	0.30	Carbonyl	6.0	129
Cyclohexane, pentyl-	27.97	61.98	14.83	0.24	0.64	0.78	Cycloalkane	6.0	154
Undecane, 5-methyl-	26.24	34.96	10.33	0.30	0.82	0.94	Alkane	5.9	71
Decane, 2,3-dimethyl-	22.27	32.21	11.99	0.37	0.86	0.77	Alkane	5.9	71
C12 branched alkane	20.60	45.84	34.91	0.76	0.94	3.64	Alkane	5.9	71
Benzene, 1,2,3,4- tetramethyl-	11.36	25.43	4.18	0.16	0.62	0.33	Aromatic	5.9	119
Camphor	17.51	*	28.85	*	0.56	*	Terpene	5.9	95
Isomenthone	131.33	188.06	178.07	0.95	0.53	1.41	Terpene	5.8	112
Undecane, 3-methyl-	21.93	11.82	61.30	5.19	0.84	7.72	Alkane	5.8	71
Octanoic acid	20.07	4.58	13.79	3.01	0.73	2.42	Acid	5.8	60
Benzyl acetate	60.62	84.24	64.49	0.77	0.45	0.67	Ester	5.8	150
Sabina ketone	1.58	1.58	0.87	0.55	0.67	1.15	Carbonyl	5.8	123

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
1-Nonanol	23.33	28.15	16.56	0.59	0.53	1.87	Alcohol	5.8	56
Borneol	7.68	7.57	2.23	0.29	0.57	1.27	Terpene	5.8	95
Menthol	16.75	43.07	9.55	0.22	0.64	0.35	Terpene	5.7	95
Ethanol, 2-(2-butoxyethoxy-)	30.44	39.30	10.98	0.28	0.65	0.64	Glycol ether	5.7	45
Tributylamine	4.40	2.28	0.71	0.31	0.49	0.52	Nitrogen	5.7	100
Dodecane	10.50	14.97	13.63	0.91	0.83	2.17	Alkane	5.7	170
Naphthalene	1.57	2.64	1.88	0.71	0.53	1.12	PAH	5.7	128
C15 branched alkane	1.29	1.46	2.79	1.90	0.79	2.93	Alkane	5.7	212
Decanal	12.15	16.11	13.85	0.86	0.48	1.54	Carbonyl	5.6	57
1-Heptanol, 2-propyl-	0.57	*	*	*	1.02	*	Alcohol	5.6	71
Verbenone	32.43	51.74	19.88	0.38	0.59	0.80	Terpene	5.6	107
C10H20O (Citronellol)	49.57	14.69	82.96	5.65	0.45	3.55	Terpene	5.5	69
Ethanol, 2-phenoxy-	66.26	74.87	79.64	1.06	0.47	1.49	Glycol ether	5.5	94
C10H22O3 Isomer	180.58	232.19	92.45	0.40	0.61	0.97	Glycol ether	5.5	59
C10H22O3 Isomer	97.51	163.54	49.05	0.30	0.59	0.89	Glycol ether	5.5	59
C13 branched alkane	260.06	409.70	81.68	0.20	0.64	0.62	Alkane	5.5	57
Benzothiazole	6.22	7.44	12.42	1.67	0.61	2.26	Thiazole	5.4	135
C13 branched alkane	27.60	100.35	31.77	0.32	0.47	0.26	Alkane	5.4	57
Benzene, m-di-tert-butyl-	131.74	248.67	73.14	0.29	0.68	1.02	Aromatic	5.4	175
C13 branched alkane	8.69	22.38	11.22	0.50	0.49	0.77	Alkane	5.4	57
Benzaldehyde, p-isopropyl	23.82	44.89	18.17	0.40	0.49	0.63	Aromatic	5.4	133
C13 branched alkane	14.46	26.20	20.88	0.80	1.25	1.49	Alkane	5.4	57
C13 branched alkane	9.01	14.12	15.36	1.09	1.09	2.66	Alkane	5.4	57
Nonanoic acid	18.27	7.00	13.90	1.99	1.25	1.42	Acid	5.4	60

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Cyclohexasiloxane, dodecamethyl- (D6)	54.05	72.09	84.01	1.17	0.57	2.34	Siloxane	5.3	73
Anethole	42.97	62.24	342.75	5.51	0.47	15.69	Aromatic	5.3	148
Tridecane	18.81	29.22	11.11	0.38	0.62	0.99	Alkane	5.3	184
C12H22O2	79.63	107.17	51.61	0.48	0.65	0.80	Terpene	5.2	82
C14 branched alkane	917.84	*	*	*	0.60	*	Alkane	5.2	57
Isobornyl acetate	199.40	521.18	63.26	0.12	0.91	0.34	Terpene	5.2	95
Undecanal	2.98	3.22	1.81	0.56	1.26	0.94	Carbonyl	5.2	57
N,N-dibutylformamide	2.88	3.31	*	*	0.85	*	Amide	5.2	72
Unidentified compound	570.62	890.14	487.59	0.55	0.64	1.99		5.2	172
C14 branched alkane	23.04	4.48	5.17	1.15	0.37	*	Alkane	5.2	57
Unidentified siloxane	2506.99	2334.73	2739.58	1.17	0.59	3.01	Siloxane	5.2	163
2-Methylnaphthalene	4.04	6.13	3.78	0.62	0.63	1.34	PAH	5.1	142
C14 branched alkane	29.46	100.78	12.62	0.13	0.66	0.47	Alkane	5.1	57
C11H14O	45.62	56.94	35.62	0.63	0.57	0.93		5.1	147
C14 branched alkane	75.23	654.86	31.76	0.05	0.57	0.08	Alkane	5.1	57
1-Methylnaphthalene	2.22	3.75	2.80	0.75	0.55	1.41	PAH	5.1	142
Tridecane, 6-methyl- / Tridecane, 4-methyl-	63.70	326.72	24.82	0.08	0.55	0.19	Alkane	5.0	57
Cyclohexane, heptyl-	84.66	92.50	25.81	0.28	0.70	0.67	Cycloalkane	5.0	83
Tridecane, 2-methyl-	23.45	6.68	22.67	3.39	0.43	9.19	Alkane	5.0	57
Unidentified siloxane	583.71	491.88	200.19	0.41	0.57	2.38	Siloxane	4.9	221
Propanoic acid, 2-methyl-, 2-ethyl-3-hydroxyhexyl ester	99.27	113.34	123.33	1.09	0.61	2.00	Ester	4.9	71
C14 branched alkane	26.02	44.70	15.93	0.36	0.94	0.53	Alkane	4.9	57
2(3H)-Furanone, dihydro-5-pentyl-	22.74	16.40	17.38	1.06	0.53	1.32	Furanoid	4.9	85

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester (Texanol B)	217.05	554.13	113.11	0.20	0.67	0.71	Acid	4.8	71
Butyl benzoate	9.62	*	*	*	0.97	*	Ester	4.8	105
Unidentified sesquiterpene	34.19	40.09	18.64	0.47	0.79	1.64	Terpene	4.8	161
Tetradecane	37.55	55.08	11.38	0.21	0.61	0.57	Alkane	4.7	198
2-Undecanone, 6,10-dimethyl-	9.16	1.00	55.62	55.82	1.44	104.47	Carbonyl	4.7	57
Unidentified sesquiterpene	14.13	18.42	5.38	0.29	0.65	0.92	Terpene	4.7	161
Biphenyl	5.99	9.56	1.81	0.19	0.57	0.55	Aromatic	4.7	154
Unidentified sesquiterpene	20.13	16.42	90.13	5.49	0.87	24.34	Terpene	4.7	161
2,4,7,9-Tetramethyl-5-decyn-4,7-diol	4.19	5.27	7.75	1.47	1.23	1.98	Alkyne	4.7	109
Dodecanal	3.66	3.07	4.10	1.33	1.46	4.95	Carbonyl	4.7	57
Vanillin	0.96	1.25	*	*	0.75	*	Aromatic	4.6	152
Unidentified C12	9.36	35.33	3.66	0.10	0.61	0.23	PAH	4.6	156
Naphthalene	50.64	54.41	34.48	0.63	0.66	0.48	Aromatic	4.6	170
Naphthalene, 1,7 & 2,6 & 2,7-dimethyl-	15.31	32.96	8.02	0.24	0.62	0.89	PAH	4.5	156
C15 branched alkane	30.01	33.06	19.17	0.58	1.39	1.40	Alkane	4.5	85
Cedrene, alpha-	32.98	74.77	18.00	0.24	0.76	1.01	Terpene	4.5	119
Cycloheptasiloxane, tetradecamethyl- (D7)	12.47	17.42	22.12	1.27	1.02	2.33	Siloxane	4.5	73
Unidentified C12 Naphthalene	12.76	17.61	2.81	0.16	0.40	0.21	PAH	4.4	156

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Geranyl acetone	73.13	39.98	36.42	0.91	0.53	1.17	Alkene	4.4	43
Benzene, hexamethyl-	*	*	*	*	0.72	*	Aromatic	4.4	147
Cedrene, beta-	28.95	33.42	23.49	0.70	0.72	1.46	Terpene	4.4	204
Unidentified C12	15.82	2.92	32.71	11.20	1.08	34.96	PAH	4.4	156
Naphthalene									
C15 branched alkane	52.21	*	*	*	0.37	*	Alkane	4.4	57
Unidentified C12	2.00	2.59	3.74	1.44	3.42	3.24	PAH	4.4	156
Naphthalene									
Unidentified compound	93.40	510.19	*	*	0.46	*		4.4	147
Unidentified sesquiterpene	30.56	106.78	42.22	0.40	0.54	0.66	Terpene	4.4	204
C15 branched alkane	197.72	692.42	49.13	0.07	0.75	0.48	Alkane	4.4	57
Dimethyl phthalate	154.99	188.67	64.04	0.34	0.70	0.40	Phthalate	4.4	163
C11H16O2	76.22	82.42	78.68	0.95	0.80	1.98		4.3	205
C15 branched alkane	29.20	49.29	*	*	0.46	*	Alkane	4.3	57
Unidentified C12	80.31	*	*	*	0.98	*	PAH	4.3	156
Naphthalene									
1-Dodecanol	124.61	40.11	1445.92	36.05	0.60	83.60	Alcohol	4.3	55
p-Benzoquinone, 2,6-di-tert-butyl-	139.34	237.03	556.43	2.35	0.57	3.68	Carbonyl	4.3	117
C15 branched alkane	54.25	17.52	20.54	1.17	0.82	0.26	Alkane	4.3	57
Unidentified compound	58.25	92.12	34.86	0.38	0.61	0.99		4.3	158
Unidentified C12	72.94	70.55	92.13	1.31	0.45	3.02	PAH	4.2	156
Naphthalene									
alpha-Isomethyl ionone	58.52	116.42	20.73	0.18	0.56	0.37	Carbonyl	4.2	135
Pentadecane	34.66	51.47	8.81	0.17	0.61	0.88	Alkane	4.2	212
Unidentified terpene	96.02	82.90	*	*	0.96	*	Terpene	4.2	161

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Phenol, 2,4-bis(1-methylethyl)-	*	*	*	*	0.36	*	Aromatic	4.2	177
C16 branched alkane	0.96	*	*	*	1.09	*	Alkane	4.2	57
Unidentified siloxane	41.09	51.10	26.93	0.53	0.63	1.09	Siloxane	4.1	221
Biphenyl, 4-methyl-	23.85	43.57	13.27	0.30	0.58	0.63	Aromatic	4.1	168
Tridecanal	1.63	9.49	0.35	0.04	0.81	*	Carbonyl	4.1	82
Butylated hydroxytoluene	5.94	10.82	5.90	0.55	0.48	1.13	Aromatic	4.1	205
Unidentified terpene	20.65	16.77	14.60	0.87	0.61	2.62	Terpene	4.1	161
Unidentified sesquiterpene	5.52	5.93	8.80	1.48	0.83	2.67	Terpene	4.1	191
Dodecanoic acid, methyl ester	94.98	46.78	127.88	2.73	0.71	6.09	Acid	4.1	74
Naphthalene, 1-(2-propenyl)-	2.33	4.20	1.14	0.27	0.63	1.08	PAH	4.1	153
C16 branched alkane	70.88	159.46	75.68	0.47	0.58	1.77	Alkane	4.1	57
Unidentified C13 Naphthalene	11.09	12.74	5.18	0.41	0.37	0.52	PAH	4.0	170
Unidentified terpene	57.21	76.33	29.45	0.39	0.54	1.35	Terpene	4.0	161
Ethyl-4-ethoxybenzoate	2.31	2.89	2.38	0.82	1.83	*	Acid	4.0	121
C16 branched alkane	256.13	3852.86	64.85	0.02	0.71	0.03	Alkane	4.0	57
Pentadecane, 5-methyl-	53.29	118.05	5.97	0.05	0.48	0.06	Alkane	4.0	57
Benzene, (1-propylheptyl)-	80.53	118.83	69.72	0.59	0.63	1.92	Aromatic	4.0	91
Pentadecane, 4-methyl-	14.63	*	6.19	*	0.52	*	Alkane	4.0	57
Unidentified C12 Naphthalene	36.40	94.65	48.66	0.51	0.59	1.57	PAH	4.0	170

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Pentadecane, 2-methyl-	65.69	114.58	44.40	0.39	0.63	1.06	Alkane	3.9	57
C9H12O3	2.39	2.64	2.67	1.01	1.10	1.95		3.9	168
Unidentified C12 Naphthalene	40.87	50.80	*	*	0.29	*	PAH	3.9	170
Pentadecane, 3-methyl-	77.16	123.92	50.88	0.41	0.55	1.12	Alkane	3.9	57
Unidentified C12 Naphthalene	32.46	58.74	22.07	0.38	0.52	0.78	PAH	3.8	170
Unidentified C12 Naphthalene	21.63	18.96	19.64	1.04	0.98	2.00	PAH	3.8	170
C17 branched alkane	39.93	50.77	43.32	0.85	0.67	1.77	Alkane	3.8	57
Hexadecane	55.40	48.79	29.98	0.61	0.66	1.28	Alkane	3.8	226
Cyclooctasiloxane, hexadecamethyl- (D8)	2.35	3.54	*	*	0.52	*	Siloxane	3.8	71
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate (TXIB)	129.69	188.61	255.09	1.35	0.75	3.14	Ester	3.7	73
Diethyltoluamide	40.02	38.87	27.59	0.71	0.78	1.03	Amide	3.8	119
Unidentified C12 Naphthalene	23.09	25.80	29.95	1.16	0.67	2.41	PAH	3.7	170
Diethyl phthalate	60.60	58.78	30.45	0.52	0.69	1.08	Phthalate	3.7	149
Tetradecanal	1.07	1.48	*	*	2.50	*	Carbonyl	3.7	82
Unidentified siloxane	1.58	15.36	0.29	0.02	0.60	*	Siloxane	3.7	
Dodecanoic acid, 1-methylethyl ester	*	*	*	*	1.05	0.05	Ester	3.6	200
C14H22O	17.00	16.44	40.52	2.47	0.74	5.94		3.6	135
Fluorene	0.94	1.09	0.53	0.49	0.47	1.01	PAH	3.6	166
Benzene, (1-butylheptyl)-	199.24	194.06	*	*	0.58	*	Aromatic	3.6	91

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Hexadecane, 7-methyl-	31.94	31.14	22.53	0.72	0.63	1.50	Alkane	3.5	57
Benzene, (1-propyloctyl)-	127.52	60.34	*	*	0.61	*	Aromatic	3.5	91
Octyl ether	15.93	66.33	10.74	0.16	0.72	0.19	Ether	3.5	57
Cedrene, 8-propoxy	49.75	44.57	23.13	0.52	0.64	1.08	Terpene	3.5	95
Hexadecane, 4-methyl-	231.35	137.57	187.33	1.36	0.63	2.83	Alkane	3.5	57
C17 branched alkane	162.34	76.82	83.28	1.08	0.79	1.34	Alkane	3.5	57
Benzophenone	47.20	53.81	87.20	1.62	0.74	3.22	Aromatic	3.4	105
Benzene, (1-ethylnonyl)-	94.54	57.00	*	*	0.64	*	Aromatic	3.4	91
C17 branched alkane	*	*	*	*	0.89	*	Alkane	3.4	57
1-Tetradecanol	25.91	39.08	*	*	0.75	*	Alcohol	3.3	83
Heptadecane	23.30	13.76	10.19	0.74	0.68	1.54	Alkane	3.3	240
n-Hexyl salicylate	245.59	514.93	92.37	0.18	0.63	0.37	Aromatic	3.3	120
Unidentified compound	88.28	152.56	50.61	0.33	0.58	0.78	Terpene3.3	191	
1,1'-Biphenyl, 3,4-diethyl-	203.61	754.16	243.26	0.32	0.65	0.54	Aromatic	3.3	195
Naphthalene, 1,6-dimethyl-4-(1-methylethyl)-	18.00	13.98	15.18	1.09	0.75	2.03	PAH	3.3	183
Benzene, (1-methyldecyl)-	122.45	101.94	*	*	0.61	*	Aromatic	3.2	105
Methyl tetradecanoate	39.82	35.19	213.55	6.07	0.67	14.08	Ester	3.2	74
2-Ethylhexyl benzoate	131.99	157.32	61.22	0.39	0.73	0.81	Aromatic	3.2	105
Benzene, (1-pentylheptyl)-	51.57	89.84	69.92	0.78	0.79	2.49	Aromatic	3.2	91

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
Unidentified compound	47.96	51.13	35.44	0.69	0.65	1.44		3.2	218
C18 branched alkane	40.24	43.11	81.04	1.88	0.57	3.90	Alkane	3.1	57
1H-Indene, 2,3-dihydro-1,1,3-trimethyl-3-phenyl-	16.52	28.85	89.00	3.08	0.52	4.97	Aromatic	3.1	221
Benzene, (1-propylnonyl)-	63.74	71.18	*	*	0.63	*	Aromatic	3.1	91
Heptadecane, 2-methyl-	47.83	37.35	62.02	1.66	0.75	3.45	Alkane	3.1	57
Heptadecane, 3-methyl-	91.89	148.87	376.24	2.53	0.63	2.95	Alkane	3.0	57
Cinnamaldehyde, alpha-hexyl-	44.94	59.14	27.59	0.47	0.71	1.00	Carbonyl	3.0	129
Unidentified compound	2.97	2.15	20.68	9.63	1.81	20.01		3.0	105
C18 branched alkane	*	*	*	*	1.47	*	Alkane	3.0	57
Cyclononasiloxane, octadecamethyl- (D9)	0.95	7.20	1.81	0.25	0.96	4.93	Siloxane	3.0	73
Benzene, (1-ethyldecyl)-	28.13	25.95	67.35	2.59	0.97	3.33	Aromatic	2.9	91
Octadecane	32.41	32.60	18.53	0.57	0.58	1.39	Alkane	2.9	57
Hexadecane, 2,6,10,14-tetramethyl-	12.63	14.13	13.28	0.94	0.87	2.08	Alkane	2.9	57
Benzyl Benzoate	71.49	36.33	64.43	1.77	0.72	4.54	Aromatic	2.8	105
Isopropyl myristate	5.32	8.29	4.38	0.53	0.69	2.72	Ester	2.8	102
2-Ethylhexyl myristate	183.86	249.33	112.05	0.45	0.71	0.93	Ester	2.8	120
Benzene, (1-hexylheptyl)-	81.20	209.68	*	*	0.44	*	Aromatic	2.7	91
Phenanthrene	1.27	1.03	0.80	0.78	0.70	1.61	PAH	2.6	178

Compound	I/O	(I/O) _{closed}	(I/O) _{Open}	$\frac{(I/O)_{open}}{(I/O)_{closed}}$	$\frac{I_{open}}{I_{closed}}$	$\left(\frac{I_{open}}{I_{closed}}\right)_{norm}$	Major Type	C*	m/z
C19 branched alkane	7.65	8.55	*	*	1.05	*	Alkane	2.6	57
Diisobutyl phthalate	31.61	30.28	*	*	0.86	*	Phthalate	2.6	149
Galaxolide	77.10	129.05	39.08	0.30	0.62	1.11	Aromatic	2.5	243
1-Hexadecanol	4.44	*	*	*	1.58	*	Alcohol	2.5	69
Nonadecane	11.31	10.09	12.13	1.20	1.02	0.18	Alkane	2.4	183
Homosalate	198.53	132.63	317.56	2.39	0.69	10.40	Ester	2.4	138
Hexadecanoic acid, methyl ester	12.23	9.80	212.22	21.66	0.46	46.61	Acid	2.3	74
Heptadecane, 9-methyl-	8.14	5.54	*	*	1.04	*	Alkane	2.2	57
Dibutyl phthalate	36.34	27.02	35.63	1.32	1.12	3.10	Phthalate	2.1	149
Eicosane	9.07	6.94	17.66	2.54	0.68	2.50	Alkane	2.0	57
Isopropyl palmitate	9.49	1.59	4.95	3.11	0.77	4.00	Ester	1.7	60
Heneicosane	8.79	5.27	8.11	1.54	0.94	1.95	Alkane	1.2	57
Docosane	3.12	2.28	14.09	6.18	0.62	8.95	Alkane	0.8	57
Tricosane	5.24	2.25	1.92	0.85	0.61	0.64	Alkane	0.7	57
4-Phenyldibenzofuran	1.54	0.71	1.33	1.89	1.39	6.79	Aromatic	0.4	244
Tetracosane	1.70	1.79	1.61	0.90	1.33	0.94	Alkane	0.3	57
Pentacosane	4.61	7.21	*	*	0.41	*	Alkane	-0.3	57
Diisooctyl phthalate	3.03	2.80	0.50	0.18	0.91	0.25	Phthalate	-0.6	149

Notes:

* denotes where the data is not available.

Identifications in this table are based on NIST mass spectra matches and retention indices.

Compounds may have more than one type (i.e. functional group), but the main one is presented here.

See Section S2 for description of ratios and formulas.

m/z indicates the single characteristic mass fragment the compound was integrated on.

Table S5. Indoor-to-Outdoor Emission Rates for Compounds Quantified via GC-EIMS with Standards [mg hr^{-1} , $\mu\text{g m}^{-2} \text{hr}^{-1}$ by home floor area]

Date	8/4	8/4	8/8	8/9	8/10	8/10	8/10	8/10	Average	
Start Time	8:00	12:00	12:00	12:00	8:00	10:00	12:00	14:00	Emission Rate	
Windows	Closed	Closed	Closed	Open	Closed	Closed	Open	Open	$[\text{mg hr}^{-1}]$	$[\mu\text{g m}^{-2} \text{hr}^{-1}]$
Sample Vol (L)	12	12	12	12	6	6	6	6		
AER (hr^{-1})	0.202	0.284	0.265	0.476	0.292	0.292	0.424	0.401		
Compound	Indoor-Outdoor Emission Rate [mg hr^{-1}]									
Benzene	0.08	0.11	0.13	0.54	0.29	0.78	0.02	-0.04	0.24	1.43
Pentane, 2,2,4-trimethyl-	0.30	0.00	0.31	3.70	1.09	3.30	0.48	0.25	1.18	7.06
Heptane	0.62	0.72	1.04	1.40	0.74	2.13	0.85	0.67	1.02	6.12
Cyclohexane, methyl-	4.38	5.10	8.29	8.09	4.61	12.75	5.28	4.98	6.69	40.03
Methyl isobutyl ketone	0.01	-0.01	0.18	0.23	0.07	0.37	0.06	0.07	0.12	0.73
Toluene	0.36	0.58	0.60	1.27	0.55	1.58	0.67	0.43	0.75	4.52
Branched C8 alkanes	0.56	0.67	-2.54	4.90	2.43	6.90	2.52	2.00	2.18	13.05
Octane	0.19	0.18	-0.07	0.41	0.15	3.30	0.29	0.13	0.57	3.43
Furfural	61.39	96.61	97.96	132.34	91.87	275.46	124.41	113.17	124.15	743.42
Ethylbenzene	0.09	0.13	-0.14	0.40	0.16	0.54	0.25	0.14	0.20	1.18
Xylenes, m&p-	0.32	0.46	-0.51	1.19	0.50	1.60	0.78	0.39	0.59	3.54
2-Heptanone	2.36	3.65	3.31	3.99	2.32	8.01	2.85	2.71	3.65	21.86
o-Xylene	0.07	0.11	-0.33	0.37	0.15	0.47	0.28	0.11	0.15	0.92
Nonane	0.17	0.16	-0.19	0.30	0.12	0.50	0.17	0.11	0.17	1.00
Pinene, alpha-	1.54	2.24	2.85	3.18	2.10	6.04	3.00	2.64	2.95	17.66
Pinene, beta-	0.60	0.78	1.34	1.23	1.97	5.44	2.36	2.03	1.97	11.79
Decane	0.06	0.06	0.07	0.20	0.13	0.24	0.16	0.02	0.12	0.70
Benzene, 1,2,4-trimethyl-	0.08	0.10	-0.41	0.43	0.19	0.64	0.19	0.13	0.17	1.01
Benzene, 1,2,3-trimethyl-	-0.01	-0.02	-0.30	0.16	0.08	0.15	0.09	0.02	0.02	0.13
Limonene	0.71	0.99	1.05	1.34	2.93	6.28	3.37	1.72	2.30	13.76
Tolualdehyde	0.06	0.06	-0.20	0.37	0.16	0.34	0.14	0.13	0.13	0.79

Undecane	0.04	0.02	0.36	0.50	0.22	0.08	0.27	0.01	0.19	1.12
Nonanal	6.23	9.91	11.37	12.64	10.39	13.28	14.12	2.18	10.02	59.97
Benzene, 1,2,4,5-tetramethyl-	-0.09	-0.14	-0.25	0.07	0.02	0.03	0.03	0.00	-0.04	-0.25
Octanoic acid	0.38	1.12	-6.87	1.19	1.84	2.01	3.00	0.33	0.38	2.25
Menthol	1.09	1.45	1.50	2.29	1.82	3.47	1.85	0.69	1.77	10.60
Dodecane	0.10	0.15	0.39	0.60	0.26	0.06	0.38	0.02	0.25	1.47
Naphthalene	0.03	0.05	-0.05	0.30	0.18	0.18	0.23	-0.03	0.11	0.67
C10H20O (Citronellol)	0.07	0.07	0.07	0.15	0.08	0.08	0.10	0.01	0.08	0.47
Tridecane	0.38	0.43	0.69	1.16	0.52	0.26	0.82	0.04	0.54	3.22
2-Methylnaphthalene	0.08	0.12	0.19	0.27	0.16	0.14	0.21	-0.01	0.14	0.87
1-Methylnaphthalene	0.00	-0.01	0.12	0.15	0.08	0.07	0.10	-0.01	0.06	0.37
Tetradecane	0.20	0.25	0.28	0.46	0.26	0.17	0.36	0.02	0.25	1.50
Dodecanal	0.05	0.09	0.08	0.10	0.11	0.05	0.20	0.02	0.09	0.52
Dimethyl phthalate	0.05	0.06	0.06	0.10	0.06	0.06	0.11	0.01	0.06	0.38
Hexadecane	0.16	0.21	0.22	0.35	0.22	0.20	0.33	0.04	0.22	1.29
Diethyl phthalate	0.30	0.40	0.36	0.59	0.40	0.29	0.59	0.07	0.38	2.25
Benzophenone	0.11	0.15	0.14	0.26	0.18	0.15	0.26	0.05	0.16	0.97
Octadecane	0.06	0.09	0.08	0.16	0.10	0.08	0.14	0.01	0.09	0.54
Dibutyl phthalate	0.01	0.09	0.04	0.05	0.15	0.10	0.19	0.04	0.08	0.50
Eicosane	0.01	0.02	0.00	0.03	0.02	0.05	0.04	0.01	0.02	0.13
Docosane	0.01	0.01	0.00	0.01	0.00	0.03	0.01	0.00	0.01	0.05
Tetracosane	0.00	0.01	-0.01	0.00	-0.01	0.01	0.00	0.00	0.00	0.00

Table S6. Indoor-to-Outdoor emission rates calculated for individual compounds in ion abundance per hour, including non-calibrated compounds

Date	4-Aug	4-Aug	8-Aug	9-Aug	10-Aug	10-Aug	10-Aug	10-Aug	
Start Time	8:00	12:00	12:00	12:00	8:00	10:00	12:00	14:00	
Windows	Closed	Closed	Closed	Open	Closed	Closed	Open	Open	
Volume (L)	12	12	12	12	6	6	6	6	
AER (hr ⁻¹)	0.202	0.284	0.265	0.476	0.176	0.227	0.938	0.867	Avg. ER
Compound Name	Indoor-Outdoor Emission Rate [*10⁶ abund hr⁻¹]								[*10⁶ abund hr⁻¹]
Cyclobutane	3.03	4.14	5.89	6.13	9.26	12.28	8.77	9.80	7.41
Formic acid	5.86	10.99	5.57	13.38	8.68	11.31	9.60	0.50	8.24
Butane, 2,3-dimethyl-	0.06	0.04	0.07	0.44	0.11	0.39	0.02	0.04	0.15
Methacrolein	0.39	0.68	0.98	0.40	0.93	3.62			1.17
Siloanol, trimethyl-	2.42	2.48		2.60	2.83	5.33	2.09	4.32	3.15
Hexane	1.15	1.75	2.02	3.70	0.90	4.54	0.67	0.43	1.90
Butanal	4.69	6.28	6.32	7.64	4.03	14.09	4.84	5.90	6.72
Methyl ethyl ketone (MEK)	0.20	0.57	0.88	0.10	0.14	0.76	0.08	0.44	0.40
Benzene, hexafluoro-	46.87	62.41	66.45	70.29	46.13	141.55	46.48	43.14	65.41
Acetic acid	47.48	61.10	136.96	151.75	245.10	555.18	297.34	290.83	223.22
Pentane, 2,2-dimethyl- / Pentane, 2,4-dimethyl-	8.03	9.38	11.08	13.60	8.12	23.68	9.38	8.24	11.44
Butane, 2,2,3-trimethyl-	1.67	0.98	0.93	0.95	0.79	1.95		0.02	1.04
Toluene, octafluoro-	11.40	12.64	16.25	16.45	9.33	32.31	12.71	10.66	15.22
Pentane, 3,3-dimethyl-	2.32	2.67	4.08	3.67	2.14	5.52	2.36	2.15	3.11
Ethane, 1,2-dichloro-	0.31	0.30	0.50	0.40	0.65	1.03	0.64	0.49	0.54
Benzene	0.88	1.25	1.50	6.14	2.43	7.99			3.37
Hexane, 2-methyl-	10.56	13.23	18.99	19.15	11.46	32.75	13.38	11.40	16.36
Hexane, 3-methyl-	4.74	5.95	8.15	10.27	5.27	15.10	6.00	4.90	7.55
1-Butanol	22.22	31.25	0.26	70.68	60.00	3.86	29.82	50.04	33.52
Pentane, 2,2,4-trimethyl-	0.11		0.12	1.43	0.41	1.27	0.17	0.08	0.51

Heptane	4.55	5.35	7.70	10.33	5.40	15.67	6.20	4.87	7.51
Pentanal	4.57	7.70	6.62	6.33	4.37	15.76	6.41	6.82	7.32
2,5-Dimethylfuran	0.10	0.09	0.18	0.16	0.20	0.13	0.12	0.26	0.16
Hexane, 2,2-dimethyl-	1.33	1.51	2.27	2.06	1.02	3.59	1.32	1.09	1.77
Propanoic Acid	2.61	3.63	3.02	11.53	6.48	22.57	8.62	8.91	8.42
Cyclohexane, methyl-	11.38	13.25	21.57	21.03	11.96	33.13	13.68	12.92	17.36
Hexane, 2,5-dimethyl-	0.14	0.17	0.23	0.37	0.16	0.48	0.17	0.14	0.23
Hexane, 2,4-dimethyl-	0.98	1.17	1.45	2.28	0.95	3.10	1.06	0.78	1.47
Cyclopentane, ethyl-	0.05	0.07	0.10	0.22	0.08	0.24	0.01	0.13	0.11
Hexane, 3,3-dimethyl-	0.10		0.13	0.14	0.07	0.34	0.09	0.06	0.13
Cyclopentane, trimethyl-	0.01	0.02	0.02	0.06	0.01	0.05	0.03	0.01	0.03
Methyl Isobutyl Ketone	0.02		0.49	0.63	0.18	1.00	0.15	0.16	0.37
Pentane, 2,3,4-trimethyl-	0.56	0.72	0.96	3.85	0.87	3.19	0.26	0.04	1.31
Pentane, 2,3,3-trimethyl-	0.05	0.06	0.09	0.31	0.07	0.24	0.01		0.12
Hexane, 2,3-dimethyl-	0.01	0.02	0.02	0.07	0.01	0.05	0.01		0.03
Propylene glycol	12.28	20.28	18.74	27.88	11.22	60.04	9.72	6.26	20.80
Heptane, 2-methyl-	2.71	3.26	1.97	4.90	2.81	7.99	3.20	2.32	3.64
Heptane, 4-methyl-	2.25	1.91		2.57	1.47	4.28	2.03	1.50	2.29
Toluene	30.25	48.73	50.20	106.73	45.81	131.95	55.37	35.94	63.12
C8 branched alkanes	0.34	0.41		3.01	1.47	4.22	1.51	1.20	1.74
1-Pentanol	2.00	3.66	2.74	3.11	2.85	6.95	3.58	2.93	3.48
Cyclopentane, 1,2,3-trimethyl-	1.11	1.57	1.79	4.10	1.10	4.17	0.62	0.20	1.83
Cyclohexane, 1,3-dimethyl-	3.97	3.60	4.72	3.57	1.86	6.90	2.35	1.02	3.50
Propanoic acid, 2-methyl-	1.19	0.08	0.28	2.94	0.86	3.24	1.58	1.22	1.42
2-Hexanone	0.14	0.24	0.23	0.25	0.13	0.49	0.19	0.18	0.23
3-Hexanone, 2-methyl	1.01	0.38		0.35	0.15	17.87	0.13	3.22	3.30
Octane	0.35	0.32		0.74	0.26	6.03	0.52	0.24	1.21
Hexanal	2.12	3.70	2.68	2.56	2.58	8.00	3.42	3.67	3.59

Hexane, 2,4,4-trimethyl-	0.11	0.07	0.05	0.02		0.23			0.09
Tetrachloroethylene	26.49	36.46	45.26	61.51	29.88	77.86	36.10	32.30	43.23
Butanoic acid	2.77	3.87	3.21	9.29	8.78	18.88	11.33	3.86	7.75
Hexane, 2,3,5-trimethyl-	0.27	0.27		0.52	0.23	0.72	0.26	0.18	0.35
Heptane, 2,2-dimethyl-	1.05	0.99	0.21	0.58	0.46	1.23	0.33	0.26	0.64
Cyclotrisiloxane, hexamethyl- (D3)	10.67	17.91	8.49	22.62	4.97	30.90	8.03	16.51	15.01
Butyl acetate	3.20	3.98	6.05	7.71	3.96	11.63	4.91	4.01	5.68
Heptane, 2,4-dimethyl-	2.40	2.79	1.28	3.89	2.15	6.64	2.87	2.42	3.06
Heptane, 2,6-dimethyl-	0.25	0.26	0.16	0.30	0.10	0.36	0.14	0.08	0.21
Heptane, 3,5/2,5-dimethyl-	0.17	0.18	0.16	0.25	0.10	0.33	0.10	0.07	0.17
Heptane, 3,3-dimethyl-	0.01	0.04	0.03	0.07	0.02	0.10	0.07	0.02	0.05
Cyclohexane, ethyl-	1.31	1.48	1.29	1.96	0.86	2.37	0.83	0.63	1.34
2,4-Dimethyl-1-heptene	2.96	2.03		1.92	1.25	4.57	1.49	1.51	2.25
Furfural	63.62	100.12	101.52	137.15	95.15	285.41	128.84	117.21	128.63
C9 branched alkane (RT = 10.153)	0.03	0.06	0.04	0.10	0.03	0.13	0.05	0.06	0.06
2-Pentanone, 4-hydroxy-4- methyl-	0.24	0.89	0.29	2.45	0.55	1.52	0.75	1.11	0.98
Cyclohexane, 1,2,4- trimethyl-	1.16	1.14	0.69	1.70	0.51	1.44	0.61	0.23	0.93
Benzene, 1-chloro-3- (trifluoromethyl)-	9.74	13.01	16.55	18.49	9.18	29.47	10.95	9.53	14.62
Hexane, 2,3,4-trimethyl-	1.32	1.54	0.66	2.02	0.94	3.34	1.31	1.03	1.52
Ethylbenzene	3.61	5.03		15.45	6.36	20.94	9.64	5.27	9.47
Heptane, 3,4-dimethyl- / Heptane, 4-ethyl-	2.54	2.68	1.43	3.53	1.17	3.76	1.13	1.07	2.16
Heptane, 3-ethyl-	0.06	0.06	0.05	0.07	0.03	0.10	0.03	0.02	0.05

Propylene glycol methyl ether acetate (PGMEA)	0.32	0.45	0.51	0.75	0.32	1.50	0.53	0.38	0.60
Xylenes, m&p-	9.20	13.19		34.58	14.47	46.11	22.51	11.15	21.60
Octane, 2-methyl-	0.10	0.12	0.02	0.20	0.08	0.15	0.08	0.08	0.10
1-Hexanol	1.30	1.86	1.71	2.54	1.78	4.45	2.10	2.02	2.22
C9 Cycloalkane (RT = 10.842)	0.26	0.25	0.20	0.30	0.14	0.46	0.17	0.09	0.23
n-Butyl ether	0.41	0.49	0.76	0.60	0.34	1.31	0.55	0.39	0.61
C9 Cycloalkane (RT = 10.934)	0.14	0.13	0.16	0.18	0.09	0.21	0.10	0.06	0.13
C9 Cycloalkane (RT = 11.014)	0.13	0.07	0.12	0.16	0.08	0.19	0.08	0.06	0.11
3-Heptanone	0.09	0.13	0.13	0.16	0.07	0.32	0.14	0.18	0.15
Cyclohexane, 1,1,2-trimethyl-	1.49	1.67	1.52	2.20	0.85	3.15	1.15	0.82	1.61
2-Heptanone	2.22	3.44	3.12	3.76	2.15	7.51	2.63	2.51	3.42
Styrene	7.52	10.07	9.24	14.24	7.60	26.23	13.12	7.94	12.00
o-Xylene	2.16	3.40		11.54	4.52	14.63	8.71	3.44	6.91
Nonane	0.30	0.29		0.53	0.21	0.87	0.30	0.19	0.38
Cyclohexanone	1.89	2.87	1.85	2.97	1.82	6.30	2.12	2.07	2.74
Pentanoic acid	4.91	5.72	7.13	9.60	9.26	10.74	13.17	1.65	7.77
Heptanal	0.36	0.53	0.32	0.30	0.25	1.42	0.35	0.48	0.50
Ethanol, 2-butoxy-	2.01	2.69	2.98	3.89	2.46	11.72	3.06	2.93	3.97
Unidentified siloxane (RT = 12.266)	0.01	0.04		0.42	0.04	0.24	0.09	0.50	0.19
C9 branched alkane (RT = 12.28)	0.11	0.12	0.10	0.70	0.20	0.44	0.23	0.28	0.27
Tricyclene	0.47	0.89	0.74	0.66	0.89	2.42	1.03	0.82	0.99

C9 branched alkane (RT = 12.475)	0.06	0.10	0.07	0.19	0.07	0.38	0.08	0.11	0.13
Unidentified monoterpene (RT = 12.543)	0.23	0.18	0.29	0.14	0.06	0.72	0.16	0.02	0.22
C10 alkane (DBE = 2) (RT = 12.612)	0.17	0.19	0.14	0.20	0.28	0.90	0.40	0.70	0.37
C9 branched alkane (RT = 12.677)	0.01	0.02	0.02	0.03	0.01	0.05	0.01	0.01	0.02
Cyclohexane, propyl-	0.91	1.15	1.32	1.79	0.78	2.55	0.97	0.72	1.27
Pinene, alpha-	21.91	31.91	40.56	45.34	29.94	86.04	42.71	37.61	42.00
Octane, 2,6-dimethyl-	0.38	0.39	0.44	0.86	0.37	1.30	0.37	0.30	0.55
2-Propanol, 1-butoxy-	2.85	4.12	3.64	4.58	2.98	11.52	4.19	3.99	4.73
C9 branched alkane (RT = 13.346)	0.38	0.42	0.46	0.85	0.31	1.02	0.37	0.27	0.51
Camphene	4.05	5.57	6.38	6.89	7.77	24.66	8.68	8.73	9.09
Benzene, propyl-	1.69	2.38	2.07	2.95	1.47	6.32	2.14	1.64	2.58
Octane, 4-ethyl-	4.14	5.25	4.54	5.56	2.61	9.12	3.74	3.37	4.79
Benzene, 1-ethyl-4-methyl-	3.46	4.86	5.62	10.98	4.79	16.31	4.85	4.09	6.87
Benzene, 1-ethyl-3-methyl-	2.41	2.99	2.65	6.52	1.58	6.24	1.65	3.02	3.38
C9 branched alkane (RT = 13.91)	0.59	0.76	0.79	1.05	0.43	1.66	0.47	0.13	0.74
Furfural, 5-methyl-	0.76	1.19	1.27	1.64	1.03	3.61	1.50	1.33	1.54
C9 branched alkane (RT = 13.975)	0.85	1.14	0.95	0.87	0.41	1.83	0.48	0.11	0.83
Benzaldehyde	19.32	29.03	17.29	38.02	27.83	82.81	38.84	30.65	35.48
Benzene, tert-butyl-	0.21	0.28	0.30	0.38	0.21	0.59	0.33	0.23	0.32
Cyclotetrasiloxane, octamethyl- (D4)	0.49	0.63	0.57	0.77	0.43	1.31	0.70	0.44	0.67
Terpene (RT = 14.117)	0.17	0.01	0.73	0.14		1.49			0.51

C10 branched alkane (RT = 14.193)	0.68	0.96	1.21	0.83	0.31	2.02	0.46	0.19	0.83
Pinene, beta-	9.04	11.82	20.14	18.57	29.66	82.00	35.59	30.54	29.67
Benzene, (1-methylethenyl)-	0.87	2.97		2.77	0.21	1.65	0.21	2.22	1.56
5-Hepten-2-one, 6-methyl-	0.21	0.39	0.23	0.22	1.25	4.51	1.13	1.25	1.15
Hexanoic acid	12.45	18.73	22.63	41.19	25.67	25.22	22.95	4.60	21.68
Myrcene	0.07	0.09	0.09	0.06	0.06	0.25	0.07	0.04	0.09
Phenol	4.83	5.69	5.11	9.12	6.55		8.58	5.17	6.44
Furan, 2-pentyl-	2.98	5.80	3.81	4.29	2.22	11.16	2.90	4.74	4.74
Decane	0.10	0.10	0.12	0.33	0.20	0.38	0.26	0.03	0.19
Benzene, 1,2,4-trimethyl-	2.40	3.14		13.57	6.10	19.98	6.00	4.12	7.90
Octanal	2.29	3.47	2.92	3.11	2.98	9.03	3.55	2.89	3.78
Unidentified C9 Aromatic (RT = 15.022)	0.03	0.04	0.06	0.06	0.13	0.25	0.19	0.03	0.10
3-Carene	4.57	6.35	6.83	7.11	4.13	17.02	5.92	5.40	7.17
C11 branched alkane (RT = 15.335)	1.45	2.19	2.43	2.41	1.20	2.72	2.41	1.01	1.98
Isocineole	0.16	0.22	0.29	0.36	2.02	6.56	2.34	2.10	1.76
Benzene, 1,3-dichloro-	0.82	1.19	1.44	2.77	1.06	3.67	1.27	1.08	1.66
o-Cymene	1.18	1.34	1.54	2.59	0.82	2.92	1.40	1.65	1.68
C11 branched alkane (RT = 15.461)	0.07	0.11	0.12	0.13	0.11	0.29	0.15	0.15	0.14
Benzene, 1,2,3-trimethyl-				4.99	2.52	4.81	2.73	0.55	3.12
C11 branched alkane (RT = 15.526)	0.33	0.56	0.40	0.53	0.32	0.41	0.93	0.24	0.46
m-Cymene	10.59	13.76	13.50	20.11	28.71	91.16	35.19	27.55	30.07
1-Hexanol, 2-ethyl-	0.93	1.49	1.16	1.88	1.20	3.40	1.43	1.10	1.57
Limonene	8.19	11.47	12.16	15.50	33.79	72.39	38.87	19.83	26.52

Eucalyptol	1.35	1.61	2.04	2.11	3.41	9.49	3.74	3.34	3.39
Indane	0.28	0.42	0.45	1.06	0.47	1.64	0.46	0.40	0.65
Benzyl alcohol	0.99	1.24	1.06	1.26	0.97	3.32	1.14	0.74	1.34
Unidentified C9 Aromatic (RT = 16.124)	0.14	0.22	0.24	0.59	0.25	0.78	0.21	0.11	0.32
C11 branched alkane (RT = 16.147)	1.17	2.10	2.55	3.12	2.69	3.34	1.56	1.36	2.24
Benzene, 1-methyl-3- propyl-	0.37	0.57	0.88	1.72	0.77	1.64	0.62	0.02	0.82
Benzaldehyde, 2-hydroxy-	0.74	1.15	1.40	1.91	1.14	1.50	1.49	0.30	1.21
Benzene, 1-ethyl-3,5- dimethyl-	0.64	0.87	1.11	2.16	0.97	3.11	0.90	0.56	1.29
Decane, 2-methyl-	1.13	1.26	2.46	2.70	2.35	1.62	2.88	0.55	1.87
Caprolactone, gamma-	1.14	1.42	1.52	1.83	1.63	5.06	2.24	2.15	2.12
Decalin	0.52	0.69	0.70	1.02	0.38	1.60	0.52	0.47	0.74
Diethyl malonate	0.08	0.10	0.08	0.12	0.07	0.05	0.08	0.00	0.07
Benzene, 1-methyl-4- propyl-	0.19	0.24	0.31	0.53	0.32	0.65	0.23	10.78	1.66
C11 branched alkane (RT = 16.64)	0.01	0.01	0.02	0.03	0.02	0.03	0.04	0.01	0.02
7-Octen-2-ol, 2,6-dimethyl-	1.71	2.89	2.94	3.70	16.26	20.17	19.95	3.06	8.83
Acetophenone	4.84	14.51		12.23	5.30	18.94	7.74	8.90	10.35
Heptanoic acid	1.57	3.29	3.30	5.20	3.90	3.19	5.36	0.52	3.29
Tolualdehyde	0.30	0.29		1.84	0.75	1.64	0.63	0.61	0.87
Unidentified C9 Aromatic (RT = 16.873)	0.31	1.49	0.52	1.38	0.48	0.46	0.35		0.71
Decane, 3-methyl-	0.10	0.12	0.26	0.25	0.22	0.19	0.17	0.02	0.17
C11 branched alkane (RT = 17)	0.11	0.16	0.28	0.14	0.13	0.30	0.20	0.02	0.17

Unidentified C9 Aromatic (RT = 17.016)	0.47	0.68	0.94	1.77	0.78	1.92	0.75	0.09	0.92
Undecane	0.05	0.04	0.51	0.72	0.31	0.10	0.38	0.00	0.26
Unidentified C10 Aromatic (DBE = 5) (RT = 17.182)	1.27	1.55		2.62	3.66	8.77	3.94	1.69	3.36
Linalool	1.25	1.99	2.00	2.14	1.31	2.03	1.91	0.13	1.59
Nonanal	0.78	1.25	1.43	1.59	1.27	1.63	1.71	0.21	1.23
6-Methyl-3,5-heptadiene-2-one	0.47	0.54	0.57	0.71	0.71	1.28	1.35	0.52	0.77
C12 branched alkane (RT = 17.481)	0.02	0.90	0.88	1.00	0.06	1.18	0.05		0.58
C12 branched alkane (RT = 17.62)	0.05	0.20	0.17	0.29	0.14	0.09	0.13		0.15
Cyclopentasiloxane, decamethyl- (D5)	24.27	37.38	28.18	43.39	46.02	37.40	60.00	8.27	35.61
Hexanoic acid, 2-ethyl-	2.29	4.45	4.73	5.63	4.41	4.23	6.44	0.91	4.14
Benzene, 1,2,4,5-tetramethyl-				2.06	0.67	0.83	0.82		1.09
Fenchol	0.67	0.83	0.68	0.94	0.98	2.58	1.04	0.90	1.08
Terpene (RT = 18)	0.08	0.10	0.03	0.15	0.13	0.31	0.16	0.04	0.13
Unidentified carbonyl (RT = 18.05)	0.11	0.16	0.16	0.21	0.13	0.35	0.18	0.09	0.17
Cyclohexane, pentyl-	0.04	0.06	0.14	0.20	0.10	0.11	0.13	0.02	0.10
Undecane, 5-methyl-	0.08	0.12	0.45	0.64	0.26	0.08	0.36	0.01	0.25
Decane, 2,3-dimethyl-	0.07	0.12	0.48	0.68	0.28	0.03	0.37	0.01	0.26
C12 branched alkane (RT = 18.47)	0.10	0.16	0.62	0.91	0.41	0.06	0.53	0.04	0.35
Benzene, 1,2,3,4-tetramethyl-	0.31	0.39	0.42	0.63	0.34	0.32	0.53		0.42

Camphor	0.87	1.17	1.21	1.46	0.72	2.71	0.95	0.97	1.26
Isomenthone	0.70	0.89	0.90	1.15	0.60	0.91	0.94	0.16	0.78
Undecane, 3-methyl-	0.09	0.12	0.47	0.65	0.26	0.03	0.30	0.02	0.24
Octanoic acid	1.89	5.85		5.99	9.21	10.10	15.12	1.25	7.06
Benzyl acetate	0.26	0.38	0.22	0.47	0.98	0.71	0.43	0.12	0.45
Sabina ketone	0.03	0.05	0.09	0.03		0.18			0.07
1-Nonanol	0.50	0.57	0.78	1.03	0.73	0.60	0.82	0.07	0.64
Borneol		0.45	0.51		0.18	1.73	0.37	0.31	0.59
Menthol	3.08	4.07	4.22	6.45	5.11	9.76	5.21	1.95	4.98
Ethanol, 2-(2-butoxyethoxy-)	3.52	5.59	6.28	8.51	6.29	5.65	8.04	0.95	5.60
Tributylamine	0.55	0.47	2.16				1.26	0.07	0.90
Dodecane	0.14	0.20	0.53	0.81	0.35	0.08	0.49	0.02	0.32
Naphthalene	1.09	1.50		9.47	5.37	5.26	7.02		4.95
C15 branched alkane (RT = 19.323)			0.00	0.01	0.01	0.02	0.02	0.01	0.01
Decanal	1.90	3.10	3.48	4.28	3.53	2.18	5.55	0.08	3.01
1-Heptanol, 2-propyl-	0.06	0.04	0.14	0.30	0.16	0.04	0.07		0.11
Verbenone	0.20	0.33	0.35	0.47	0.26	0.42	0.43	0.04	0.31
C10H20O (Citronellol) (RT = 19.803)	0.34	0.35	0.36	0.75	0.38	0.40	0.46	0.05	0.39
Ethanol, 2-phenoxy-	2.20	3.33	3.26	4.53	2.86	5.08	4.04	0.26	3.20
C10H22O3 isomer (RT = 19.927)	3.75	5.95	6.01	9.37	5.81	4.66	7.16	0.81	5.44
C10H22O3 isomer (RT = 20.003)	1.06	1.63	1.96	2.10	1.79	0.98	2.25	0.19	1.50
C13 branched alkane (RT = 20.014)	3.56	6.96	5.99	10.50	6.24	5.10	7.76	0.89	5.88
Benzothiazole	3.33	4.65	1.28	7.36	4.02	10.13	6.44	1.52	4.84

C13 branched alkane (RT = 20.121)	0.12	0.22	0.27	0.30	0.32	0.11	0.32	0.02	0.21
Benzene, m-di-tert-butyl-	0.34	0.65	0.90	1.23	0.83	0.34	0.99	0.09	0.67
C13 branched alkane (RT = 20.215)	0.09	0.34	0.33	0.71	0.41	0.11	0.51		0.36
Benzaldehyde, p-isopropyl	0.53	0.73	0.75	1.18	0.71	0.73	1.02	0.02	0.71
C14 branched alkane (RT = 20.326)	0.50	0.72	1.28	1.98	1.04	0.20	1.48		1.03
C13 branched alkane (RT = 20.39)	0.32	0.47	1.21	1.71	0.98	0.10	1.18		0.85
Nonanoic acid	0.40	1.57	0.43	1.33	3.74	3.08	5.44	1.11	2.14
Cyclohexasiloxane, dodecamethyl- (D6)	3.98	7.30	4.38	7.36	2.88	4.48	6.71	0.43	4.69
Anethole	0.19	0.28	0.20	0.29	0.17	0.20	0.29	0.02	0.20
Tridecane	0.15	0.18	0.28	0.48	0.20	0.10	0.33	0.01	0.22
C12H22O2 (RT = 20.881)	1.04	1.90	2.33	3.21	2.59	2.12	3.51	0.42	2.14
C14 branched alkane (RT = 20.881)	0.76	1.35	1.64	2.33	1.65	1.59	1.99	0.27	1.45
Isobornyl acetate	0.32	0.70	1.03	1.91	2.83	2.31	3.52	0.51	1.64
Undecanal	0.20	0.54	0.51	0.15					0.35
N,N-dibutylformamide		1.51	0.35						0.93
Unidentified compound	0.30	0.47	0.56	0.94	0.62	0.51	0.78	0.07	0.53
C14 branched alkane (RT = 21.114)	0.22	0.54	0.76	0.71	0.23	0.13	0.58		0.45
Unidentified siloxane (RT = 21.183)	0.76	0.97	1.60	2.30	1.25	0.96	1.25	0.16	1.16
2-Methylnaphthalene	0.81	1.13	1.83	2.61	1.58	1.38	2.00		1.62

C14 branched alkane (RT = 21.230)	0.27	0.50	1.00	1.29	0.62	0.16	1.20	0.02	0.63
C11H14O (RT = 21.339)	0.80	1.16	1.18	1.86	1.19	1.07	1.65	0.11	1.13
C14 branched alkane (RT = 21.428)	0.14	0.12	0.35	0.27	0.15	0.08	0.17	0.03	0.16
1-Methylnaphthalene	0.04		1.13	1.42	0.77	0.64	0.93		0.82
Tridecane, 6-methyl- / Tridecane, 4-methyl-	0.56	0.82	0.61	1.30	0.84	0.35	0.42	0.06	0.62
Cyclohexane, heptyl-	0.17	0.27	0.32	0.55	0.50	0.37	0.72	0.05	0.37
Tridecane, 2-methyl-	0.10	0.15	0.14	0.20	0.08	0.06	0.20	0.00	0.12
Unidentified siloxane (RT = 21.901)	0.28	0.36	0.37	0.55	0.35	0.30	0.46	0.04	0.34
Propanoic acid, 2-methyl-, 2-ethyl-3-hydroxyhexyl ester	9.18	15.57	13.69	18.67	12.73	10.14	17.55	2.26	12.48
C14 branched alkane (RT = 22.098)	0.22	0.38	0.63	1.41	0.81	0.68	1.29	0.12	0.69
2(3H)-Furanone, dihydro-5- pentyl-	0.85	1.29	1.08	2.10	1.17	1.12	1.74	0.07	1.18
Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4- trimethylpentyl ester (Texanol B)	11.12	18.30	16.87	28.89	18.57	12.55	25.25	2.51	16.76
Butyl benzoate	0.78	1.10	0.59	1.27	0.85	0.76	1.32		0.95
Unidentified sesquiterpene (RT = 22.525)	0.06	0.09	0.22	0.46	0.35	0.12	0.35	0.03	0.21
Tetradecane	0.37	0.46	0.52	0.84	0.48	0.31	0.66	0.03	0.46
2-Undecanone, 6,10- dimethyl-	0.08	0.30	0.37	0.58			1.46		0.56

Unidentified sesquiterpene (RT = 22.761)	0.01	0.02	0.05	0.07	0.07	0.03	0.06		0.04
Biphenyl	0.39	0.51	0.55	0.89	1.25	1.22	2.23		1.01
Unidentified sesquiterpene (RT = 22.844)	0.00	0.00	0.04	0.02	0.02	0.01	0.04	0.00	0.02
2,4,7,9-Tetramethyl-5- decyn-4,7-diol	0.07	0.11	0.14	0.59	1.05	0.71	1.41	0.18	0.53
Dodecanal	0.16	0.38	0.37	0.46	0.31	0.04	0.42		0.30
Vanillin	0.28	0.09	0.37	0.74	0.50	0.28	0.67	0.07	0.38
Unidentified C12 Naphthalene (RT = 23.048)	0.07	0.09	0.10	0.16	0.13	0.10	0.14		0.11
Diphenyl ether	0.42	0.61		0.96	0.93	0.85	1.30	0.08	0.74
Naphthalene, 1,7-dimethyl- / Naphthalene, 2,6- dimethyl- / Naphthalene, 2,7-dimethyl-	0.35	0.50	0.53	0.86	0.52	0.42	0.72	0.03	0.49
C15 branched alkane (RT = 23.304)	0.27	0.39	0.15	0.82	0.08	0.25	1.01	0.06	0.38
Cedrene, alpha-	1.51	2.46	4.84	7.17	5.02	2.10	5.90	0.47	3.68
Cycloheptasiloxane, tetradecamethyl- (D7)	0.72	1.50	0.94	1.75	0.80	1.09	1.79		1.23
Naphthalene + C2 (RT = 23.49)	0.34	0.47	0.29	0.83	0.51	0.40	0.32		0.45
Geranyl acetone	2.79	3.84	2.96	3.76	2.48	1.93	3.73	0.24	2.71
Benzene, hexamethyl-	0.72	1.22	1.80	3.03	1.58	1.15	2.54	0.14	1.52
Cedrene, beta-	0.13	0.17	0.43	0.53	0.39	0.15	0.44	0.04	0.28
Unidentified C12 Naphthalene (RT = 23.574)	0.21	0.25	0.27	0.45	0.20	0.02	0.32		0.25

C15 branched alkane (RT = 23.617)	0.57	0.90	0.89	1.24	0.62	0.55	0.98	0.02	0.72
Unidentified C12 Naphthalene (RT = 23.662)	0.00			0.35	0.00	0.10		0.00	0.09
Unidentified compound	0.17	0.18	0.28	0.28	0.21	0.11	0.27	0.01	0.19
Unidentified sesquiterpene (RT = 23.701)	0.04	0.07	0.18	0.11	0.15	0.04	0.11	0.01	0.09
C15 branched alkane (RT = 23.697)	0.61	0.66	0.44	1.64	0.50	0.32	1.04	0.09	0.66
Dimethyl phthalate	1.60	2.22	1.92	3.63	2.18	2.13	3.80	0.35	2.23
C11H16O2 (RT = 23.787)	0.28	0.41	0.46	0.63	0.62	0.55	0.92	0.15	0.50
C15 branched alkane (RT = 23.787)	0.24	0.51	0.44	0.91	0.34	0.31	0.81	0.00	0.44
Unidentified C12 Naphthalene (RT = 23.858)	0.18	0.26	0.26	0.45	0.25	0.19	0.32		0.27
1-Dodecanol	1.07	1.34	1.42	2.63	1.59	1.14	1.89	0.14	1.40
p-Benzoquinone, 2,6-di-tert-butyl-	0.05	0.07	0.06	0.10	0.10	0.07	0.09	0.01	0.07
C15 branched alkane (RT = 24.011)	1.18	1.68	0.22	1.28	0.76	1.35	2.47	0.26	1.15
Unidentified compound	0.29	0.41	0.41	0.71	0.47	0.35	0.56	0.05	0.41
Unidentified C12 Naphthalene (RT = 24.115)	0.08	0.12	0.12	0.18	0.12	0.09	0.13	0.01	0.10
alpha-Isomethyl ionone	0.23	0.36	0.50	0.55	0.53	0.34	0.60	0.02	0.39
Pentadecane	0.26	0.36	0.39	0.55	0.36	0.29	0.49	0.03	0.34
Unidentified terpene (RT = 24.193)	0.12	0.16	0.19	0.28	0.15	0.10	0.23		0.17

Phenol, 2,4-bis(1-methylethyl)-	0.23	0.28	0.24	0.32	0.22	0.18	0.28	0.01	0.22
C16 branched alkane (RT = 24.29)	0.41	0.30	0.36	0.48	0.32	0.37	0.64		0.41
Unidentified siloxane (RT = 24.46)	0.33	0.45	0.45	0.67	0.45	0.33	0.51	0.07	0.41
Biphenyl, 4-methyl-	0.53	0.73	0.74	1.21	0.79	0.65	1.02	0.04	0.71
Tridecanal		0.09	0.18						0.13
Butylated hydroxytoluene	0.69	0.09	0.30	0.33	0.20	0.15	0.16	0.11	0.25
Unidentified terpene (RT = 24.52)	0.15	0.17	0.24	0.29	0.16	0.12	0.25	0.04	0.18
Unidentified sesquiterpene (RT = 24.535)			1.00	0.59	0.18	0.05		2.41	0.84
Dodecanoic acid, methyl ester	0.55	0.77	0.76	1.21	0.72	0.61	1.03	0.21	0.73
Naphthalene, 1-(2-propenyl)-	0.14	0.09	0.29	0.40	0.22	0.16	0.23		0.22
C16 branched alkane (RT = 24.654)	0.55	0.96	0.77	1.36	0.70	0.58	0.99	0.09	0.75
Unidentified C13 Naphthalene (RT = 24.764)	0.05	0.08	0.09	0.16	0.09	0.07	0.11		0.09
Unidentified terpene (RT = 24.778)	0.33	0.40	0.57	0.68	0.45	0.37	0.54	0.05	0.42
Ethyl 4-ethoxybenzoate	0.37	1.04	0.51	0.77	0.43	0.07	1.20		0.63
C16 branched alkane (RT = 24.81)	1.86	2.91	1.68	4.88	2.92	2.20	3.52	0.40	2.55
Pentadecane, 5-methyl-	0.36	0.66	2.31	1.00	0.86	0.51	0.94		0.95
Benzene, (1-propylheptyl)-	0.39	0.51	0.53	0.89	0.52	0.53	0.75	0.06	0.52
Pentadecane, 4-methyl-	0.25	0.37	0.47	0.34	0.31	0.25	0.49	0.03	0.31

Naphthalene + C3 (RT = 25.006)	0.58	0.68	0.61	0.47	0.63	0.42	0.85	0.14	0.55
Pentadecane, 2-methyl- C9H12O3 (RT = 25.065)	0.71	1.01	1.08	1.54	0.97	0.83	1.47	0.14	0.97
Unidentified C13 Naphthalene (RT = 25.105)	0.22	0.30	0.22	0.18	0.32	0.23	0.19	0.01	0.21
Pentadecane, 3-methyl- Unidentified C13 Naphthalene (RT = 25.303)	1.06	0.89	1.11	1.34	1.40	0.73	1.52	0.16	1.03
Unidentified C13 Naphthalene (RT = 25.368)	0.15	0.19	0.20	0.33	0.21	0.18	0.28	0.01	0.19
Unidentified C13 Naphthalene (RT = 25.368)	0.11	0.15	0.16	0.23	0.15	0.10	0.23		0.16
C17 branched alkane (RT = 25.539)	2.79	3.82	3.14	6.59	4.92	4.64	7.16	0.79	4.23
Hexadecane	0.27	0.37	0.37	0.60	0.37	0.34	0.54	0.06	0.37
2,2,4-Trimethyl-1,3- pentanediol diisobutyrate (TXIB)	31.57	48.89	44.27	75.43	57.85	32.37	73.89	11.26	46.94
Cyclooctasiloxane, hexadecamethyl- (D8)	0.32	0.50	0.38	0.88	0.48	0.14	0.80	0.02	0.44
Diethyltoluamide	1.77	4.12	2.86	5.03	5.68	3.55	6.35	1.14	3.81
Unidentified C13 Naphthalene (RT = 25.523)	0.17	0.23	0.25	0.28	0.26	0.19	0.38	0.05	0.23
Diethyl phthalate	9.45	12.53	11.32	18.51	12.38	9.02	18.17	2.02	11.68
Tetradecanal		0.04	0.03						0.04
Unidentified siloxane (RT = 25.819)			0.09		0.11	0.06			0.09
Dodecanoic acid, 1- methylethyl ester	0.10	0.13	0.13	0.23	0.15	0.07	0.16		0.14
C14H22O (RT = 25.856)	0.28	0.48	0.45	0.50	0.42	0.35	0.42	0.29	0.40
Fluorene	0.07	0.02	0.20	0.20	0.00		0.06		0.09

Benzene, (1-butylheptyl)-	0.90	1.17	1.17	1.97	1.18	1.05	1.68	0.12	1.16
Hexadecane, 7-methyl-	2.59	3.84	3.82	5.76	3.81	3.33	5.65	0.44	3.66
Benzene, (1-propyloctyl)-	0.47	0.42	0.58	0.65	0.63	0.56	0.84	0.09	0.53
Octyl ether	0.20	0.51	0.46	0.73	0.35	0.23	0.44	0.08	0.37
Cedrene, 8-propoxy	1.30	1.78	2.05	3.14	1.99	1.59	2.83	0.19	1.86
Hexadecane, 4-methyl-	1.87	2.17	2.27	2.84	2.62	1.91	3.19	0.45	2.16
C17 branched alkane (RT = 26.263)	0.24	0.79	0.23	1.26	0.79	0.63	0.92	0.09	0.62
Benzophenone	4.83	6.48	6.15	11.29	7.62	6.19	10.64	1.75	6.87
Benzene, (1-ethylnonyl)-	0.29	0.36	0.35	0.61	0.38	0.32	0.52	0.06	0.36
C17 branched alkane (RT = 26.441)	0.11	0.04	0.08	0.34	0.21		0.02		0.13
1-Tetradecanol		0.51	0.32	0.48	0.35				0.41
Heptadecane	0.16	0.23	0.25	0.39	0.23	0.19	0.34	0.03	0.23
n-Hexyl salicylate	1.21	1.65	1.42	2.52	1.61	1.34	1.83	0.29	1.49
Unidentified compound	0.55	0.74	0.60	0.92	0.62	0.44	0.87	0.08	0.60
1,1'-Biphenyl, 3,4-diethyl-	0.28	0.33	0.36	0.63	0.35	0.36	0.56	0.05	0.36
Naphthalene, 1,6-dimethyl-4-(1-methylethyl)-	0.08	0.19	0.18	0.33	0.14	0.17	0.33	0.03	0.18
Benzene, (1-methyldecyl)-	0.40	0.59	0.59	0.95	0.61	0.52	1.12	0.06	0.60
Methyl tetradecanoate	0.16	0.26	0.24	0.39	0.27	0.19	0.37	0.04	0.24
2-Ethylhexyl benzoate	22.18	31.39	30.18	50.12	37.70	32.44	53.58	8.13	33.22
Benzene, (1-pentylheptyl)-	0.15	0.12	0.85	0.39	0.61	0.48	0.78	0.22	0.45
Unidentified compound	0.28	0.37	0.39	0.66	0.35	0.31	0.56	0.05	0.37
C18 branched alkane (RT = 27.023)	1.30	1.13	1.21	1.42	1.69	1.35	2.50	0.32	1.37

1H-Indene, 2,3-dihydro-1,1,3-trimethyl-3-phenyl-	0.28	0.31	0.26	0.64	0.39	0.34	0.58	0.03	0.35
Benzene, (1-propylonyl)-	0.28	0.37	0.29	0.72	0.40	0.35	0.55	0.03	0.37
Heptadecane, 2-methyl-	0.18	0.28	0.24	0.51	0.24	0.21	0.40	0.04	0.26
Heptadecane, 3-methyl-	0.20	0.32	0.27	0.51	0.31	0.30	0.41	0.04	0.30
Cinnamaldehyde, alpha-hexyl-	0.34	0.45	0.46	0.79	0.54	0.37	0.65	0.11	0.47
Unidentified compound	0.01		0.22	0.48	0.26	0.29	0.51	1.58	0.48
C18 branched alkane (RT = 27.414)	0.11	0.15	0.15	0.23	0.10	0.07	0.16		0.14
Cyclononasiloxane, octadecamethyl- (D9)		0.03	0.02	0.02	0.02	0.01	0.02		0.02
Benzene, (1-ethyldecyl)-	0.22	0.31	0.29	0.44	0.30	0.21	0.36	0.34	0.31
Octadecane	1.58	2.20	1.95	3.84	2.35	2.03	3.45	0.20	2.20
Hexadecane, 2,6,10,14-tetramethyl-	0.20	0.85	0.99	2.21	1.29	0.84	1.87		1.18
Benzyl Benzoate	0.73	0.89	0.99	1.82	1.13	0.82	1.53	0.17	1.01
Isopropyl myristate		0.56	2.32	2.22	1.13	0.30	2.58		1.52
2-Ethylhexyl myristate	2.20	3.08	2.82	4.99	3.14	2.68	4.39	0.71	3.00
Benzene, (1-hexylheptyl)-	0.19	0.22	0.22	0.38	0.22	0.22	0.38	0.00	0.23
Phenanthrene	0.38	0.01	0.66	0.74			0.30		0.42
C19 branched alkane (RT = 28.31)	0.06	0.13	0.09	0.20	0.09	0.13	0.18		0.13
Diisobutyl phthalate	0.81	5.56	3.50	4.97	6.78	4.08	7.81	1.04	4.32
Galaxolide	0.60	0.80	0.76	1.16	0.86	0.64	1.04	0.13	0.75
1-Hexadecanol					2.25			3.08	2.67
Nonadecane	0.02	0.02	0.01	0.05	0.03	0.04	0.05	0.01	0.03
Homosalate	1.93	2.61	2.27	4.08	2.57	1.99	3.49	0.62	2.44

Hexadecanoic acid, methyl ester	0.50	1.00	0.81	1.44	0.73	0.54	1.16	0.01	0.77
Heptadecane, 9-methyl-	0.17	0.17	0.01	0.32	0.37	0.37	0.39	0.15	0.24
Dibutyl phthalate	0.67	4.82	2.30	2.97	8.47	5.26	10.33	2.31	4.64
Eicosane	0.37	0.48		0.80	0.43	1.19	0.90	0.06	0.61
Isopropyl palmitate	0.03	0.03	0.13	0.17	0.21	0.17	0.22	0.00	0.12
Heneicosane	0.23	0.37	0.12	0.46	0.23	0.72	0.41		0.36
Docosane	0.14	0.36		0.14		0.70	0.02		0.27
Tricosane	0.11	0.20		0.05		0.87			0.31
4-Phenyldibenzofuran					0.38		0.16		0.27
Tetracosane	0.03	0.24		0.05		0.14			0.11
Pentacosane		0.16		0.09		0.24			0.17
Diisooctyl phthalate	0.01	0.16		0.07	7.54				1.95

Notes:

Identifications in this table are based on NIST mass spectra matches and retention indices.

Ion abundances are presented here for the characteristic m/z ion selected for identification in GC-EIMS. Therefore, converting these values to concentrations or masses (not abundance) requires calibration with a standard.

Values missing indicate insufficient signal.

1 **Table S7.** Average compound class composition for functionalized organic aerosol across indoor
 2 sampling sites

Class	St. Louis Summer		Mainz Winter		Southern CT Summer	
	Indoors	Outdoors	Indoors	Outdoors	Indoors	Outdoors
CHO	20%	27%	21%	13%	33%	23%
CHN	3.9%	6.6%	18%	11%	10%	8%
CHON (O/N<3)	13%	9%	12%	64%	17%	26%
CHON (O/N≥3)	27%	43%	13%	10%	9.0%	6.1%
CHNS	0.7%	0.7%	1.2%	0%	0.9%	15%
CHONS	31%	10%	22%	2%	12%	12%
CHOS	4.5%	3.7%	14%	0%	18%	10%

3

4

5 **Table S8.** Compounds in standards for calibration of GC-EIMS and GC-APCI-TOF-MS data

<u>Compound Name</u>	<u>Formula</u>
<i>Diesel Range Organics</i>	
Decane	C ₁₀ H ₂₂
Dodecane	C ₁₂ H ₂₆
Tetradecane	C ₁₄ H ₃₀
Hexadecane	C ₁₆ H ₃₄
Octadecane	C ₁₈ H ₃₈
Eicosane	C ₂₀ H ₄₂
Docosane	C ₂₂ H ₄₆
Tetracosane	C ₂₄ H ₅₀
Hexacosane	C ₂₆ H ₅₄
Octacosane	C ₂₈ H ₅₈
<i>Fatty Acid Methyl Esters</i>	
Methyl octanoate	C ₉ H ₁₈ O ₂
Methyl decanoate	C ₁₁ H ₂₂ O ₂
Methyl dodecanoate	C ₁₃ H ₂₆ O ₂
Methyl myristate	C ₁₅ H ₃₀ O ₂
Methyl palmitate	C ₁₇ H ₃₄ O ₂
Methyl stearate	C ₁₉ H ₃₈ O ₂
Methyl eicosanoate	C ₂₁ H ₄₂ O ₂
<i>Functionalized Compounds</i>	
Benzene	C ₆ H ₆
4-Heptanone	C ₇ H ₁₄ O
Dimethylbenzylamine	C ₉ H ₁₃ N
Dibutyl sulfide	C ₈ H ₁₈ S
Octanethiol	C ₈ H ₁₈ S
Nopinone	C ₉ H ₁₄ O
Menthol	C ₁₀ H ₂₀ O
Octanoic acid	C ₈ H ₁₆ O ₂
Citronellol	C ₁₀ H ₂₀ O
Limonene ketone (from Limonene epoxide)	C ₁₀ H ₁₆ O
Dodecanal	C ₁₂ H ₂₄ O
Diphenyl ether	C ₁₂ H ₁₀ O
Dimethyl phthalate	C ₁₀ H ₁₀ O ₄
Dodecanenitrile	C ₁₂ H ₂₃ N
DEET	C ₁₂ H ₁₇ NO

Diethyl phthalate	C ₁₂ H ₁₄ O ₄
Benzophenone	C ₁₃ H ₁₀ O
Dibutyl phthalate	C ₁₆ H ₂₂ O ₄
Benzyl butyl phthalate	C ₁₉ H ₂₀ O ₄
Bis(2-ethylhexyl) phthalate	C ₂₄ H ₃₈ O ₄

Standard Cylinder (Apel-Riemer)

Acetone	C ₃ H ₆ O
Methyl Vinyl Ketone	C ₄ H ₆ O
Benzene	C ₆ H ₆
2,2,4-Trimethylpentane	C ₈ H ₁₈
Heptane	C ₇ H ₁₆
Methylcyclohexane	C ₇ H ₁₄
4-Methyl-2-Pentanone	C ₆ H ₁₂ O
Toluene	C ₇ H ₈
3-Methylheptane	C ₈ H ₁₈
Isobutylnitrate	C ₄ H ₉ NO ₃
Octane	C ₈ H ₁₈
Butylacetate	C ₆ H ₁₂ O ₂
Furfural	C ₅ H ₄ O ₂
Ethylbenzene	C ₈ H ₁₀
<i>m/p</i> -Xylene	C ₈ H ₁₀
<i>o</i> -Xylene	C ₈ H ₁₀
Nonane	C ₉ H ₂₀
a-Pinene	C ₁₀ H ₁₆
b-Pinene	C ₁₀ H ₁₆
Decane	C ₁₀ H ₂₂
1,2,4-Trimethylbenzene	C ₉ H ₁₂
1,2,3-Trimethylbenzene	C ₉ H ₁₂
Limonene	C ₁₀ H ₁₆
<i>o</i> -Tolualdehyde	C ₈ H ₈ O
Undecane	C ₁₁ H ₂₄
Nonanal	C ₉ H ₁₈ O
1,2,3,5-Tetramethylbenzene	C ₁₀ H ₁₄
2,5-Dimethylbenzaldehyde	C ₉ H ₁₀ O
Dodecane	C ₁₂ H ₂₆
Naphthalene	C ₁₀ H ₈
Tridecane	C ₁₃ H ₂₈
2-Methylnaphthalene	C ₁₁ H ₁₀
1-Methylnaphthalene	C ₁₁ H ₁₀