



FINAL REPORT

The Effect of Wildfires and the Wildland Urban Interface (WUI) on Indoor Air Quality and Health in Residential Homes

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Executive Summary

Background. Emissions from wildland-urban interface (WUI) fires differ from those produced by wildland fires primarily due to the unique combination of materials involved in the combustion process. The combustion of organic and synthetic materials results in the production of a broader range of pollutants compared to traditional wildland fires. This study was initiated as part of the Advancing Science Partnerships for Indoor Reduction of Smoke Exposures (ASPIRE) project, led by the United States Environmental Protection Agency (U.S. EPA), to determine the chemical profiles and indoor air status in homes at high risk of wildfire impact. As a research partner, Chemical Insights Research Institute (CIRI) has contributed to identifying volatile organic compound (VOC) pollution in wildfire prone areas.

Methodology. Indoor and outdoor air samples were collected from 38 homes in Tulare County, California, during two sampling events. For each household, air samples for VOCs and aldehydes were collected using calibrated personal air sampling pumps and Tenax® TA tubes for VOC collection and 2,4-dinitrophenylhydrazine (DNPH) cartridges for aldehyde collection. Air sampling devices were suspended from tripods at a height corresponding to the average breathing zone height of an adult. These samples were further analyzed using gas chromatography-mass spectrometry (GC-MS) for VOCs and high-performance liquid chromatography (HPLC) for aldehydes.

Results. There were 1,083 individual VOCs detected from the indoor samples while 517 were detected from the outdoor samples. A significant number, 734 VOCs, were unique to the indoor environment while 168 VOCs were specific to the outdoor environment. The 10 most frequently found VOCs across homes included toluene, decanal, decamethylcyclopentasiloxane, acetaldehyde, nonanal, formaldehyde, acetic acid, 2-ethyl-1-hexanol, ethyl acetate, and dihydromyrcenol. Key VOCs of highest concentration included tetramethylhexadecane, isopropanol, limonene, decamethylcyclopentasiloxane (D5), dodecamethylpentasiloxane, pentamethylheptane, dipropylene glycol monobutyl ether, 1-butoxy-2-propanol, tetradecane, and toluene. Certain VOCs of concern were found to exceed recommended indoor air levels or are known to be carcinogens or reproductive toxins, including toluene, formaldehyde, acetaldehyde, nonanal, octanal, benzene, furfural, trimethylbenzene, and tetrachloroethylene.

Conclusions. Although no significant wildfire events occurred in the area during 2023, or during the sampling periods, the data collected provided an important baseline for understanding indoor air quality in homes that are frequently affected by wildfire smoke. Overall, the indoor air samples showed higher concentrations of VOCs compared to outdoor air. Many VOCs detected indoors were linked to indoor activities, building materials, home furnishings, electronics, cleaning products, and personal care products. These data will be a valuable resource for wildfire health impact researchers and represent a useful comparative background for future environmental health studies in wildfire-impacted areas.

1.0 Introduction

As urban areas expand into wildland areas, the wildland urban interface (WUI) has become a focal point for wildfire impacts. The unique mix of combustible materials in WUI fires, including both natural vegetation and synthetic building materials, results in emissions that may differ from those of a forest wildfire or an urban fire. The smoke from WUI fires is expected to contain a range of hazardous air pollutants, including particulate matter (PM), volatile organic compounds (VOCs), and polycyclic aromatic hydrocarbons (PAHs). These pollutants are known to cause various adverse health effects, particularly affecting vulnerable populations such as children, the elderly, and those with pre-existing health conditions. Despite this understanding, there remain significant gaps in knowledge about the specific emissions and combustion conditions in WUI fires, necessitating further research to better estimate their impact on air quality and public health.

CIRI collaborated with the United States Environmental Protection Agency (U.S. EPA) Office of Research and Development - Center for Environmental Measurement and Modeling – Air Methods and Characterization Division to study the emission profile and health effects associated with WUI fires in Tulare County, California. This ASPIRE (Advancing Science Partnerships for Indoor Reduction of Smoke Exposures) project had two phases. In the Phase 1 study, Technical Report R330: [The Effect of Wildfires and the Wildland Urban Interface \(WUI\) on Indoor Air Quality and Health in Residential Homes](#), Chemical Insights Research Institute (CIRI) performed a baseline study and sampling method optimization for VOC and aldehyde analysis in July 2022.¹ In the Phase 2 study, CIRI collected air samples for chemical analysis from 38 homes in September and October 2023, using the sampling strategy developed from the Phase 1 study. Specific VOCs and aldehydes were identified and quantified both in indoor and outdoor air in a community at high-risk for air quality impacts from wildfires. This report summarizes the findings from the Phase 2 study.

2.0 Materials and Methods

2.1 SAMPLING SCENARIOS

CIRI concurrently collected paired indoor and outdoor VOC and aldehyde samples from 38 homes in Tulare County, California. The indoor samples were taken in the most frequently occupied common area of the home and outdoor samples were taken in the front yard of the home, both at typical breathing height. Home 4 was excluded due to participants dropping out. There were five pairs of homes that shared one outdoor sample as they were closely located. These included homes 2&3, 9&38, 16&31, 21&22, 33&34. Two sampling trips were conducted: the first in September 2023, followed by the second in October 2023.

2.2 AIR SAMPLING AND CHEMICAL ANALYSIS

VOC and aldehyde samples were collected separately on Tenax[®] TA sorbent tubes and 2,4-dinitrophenylhydrazine (DNPH) cartridges using calibrated portable pumps. After collection, the Tenax[®] TA tubes were returned to CIRI's laboratory and analyzed according to U.S. EPA TO-17 method for a non-targeted list of VOCs using gas chromatography/mass spectrometry (GC/MS). The DNPH cartridges were analyzed according to U.S. EPA TO-11A method for low molecular weight aldehydes using high-performance liquid chromatography (HPLC) paired with an ultraviolet visible detector. See CIRI Technical Brief TB 080: [VOC and Aldehyde Analysis Methods Used in Research Studies](#) for a detailed description of these analysis methods.²

3.0 Results and Discussion

3.1 TOTAL VOLATILE ORGANIC COMPOUND (TVOC) CONCENTRATIONS

Total volatile organic compound (TVOC) concentrations were calculated for all valid samples (Figure 1), by summing the toluene equivalent responses for compounds ranging from C6 to C16. In general, indoor TVOC concentrations were higher than those outdoors, likely due to various VOC sources indoors, which include household cleaning and personal care products, building materials and furnishings, cooking, and hobby activities. In contrast to the outdoor environment, indoor spaces typically have less air dilution, which can cause VOCs from various sources to be elevated. The TVOC levels from both trips are summarized in Figure 1. The indoor and outdoor TVOC ranges were comparable except for one outdoor sample from October, which was likely an outlier. When compared to the Leadership in Energy and Environmental Design (LEED) green building criteria³, seven indoor samples from September and nine indoor samples from October were higher than the TVOCs threshold of 500 $\mu\text{g}/\text{m}^3$. Out of these 16 homes, homes 26, 32, 33, and 34 had indoor TVOC concentrations consistently over 500 $\mu\text{g}/\text{m}^3$ for both trips. LEED is a green building certification program developed by the U.S. Green Building Council (USGBC) that provides a framework for healthy, efficient, and cost-saving green buildings. It is widely recognized around the world as a standard for measuring and improving building sustainability.

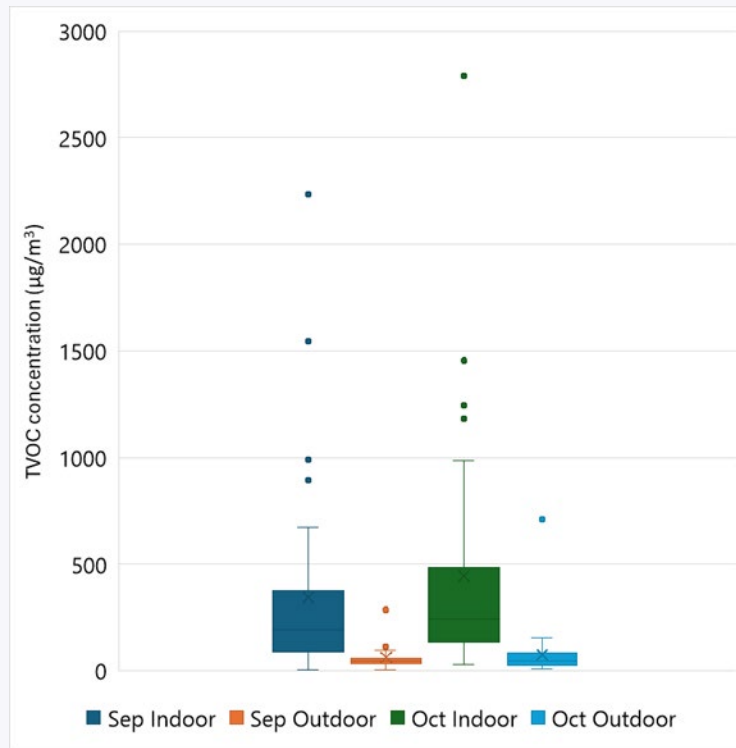


Figure 1: Summary of TVOC concentrations in all homes during two trips.

3.2 INDIVIDUAL VOCs IN TWO ENVIRONMENTS

There were over 1,000 individual VOCs detected from the indoor samples and about 500 individual VOCs were detected from the outdoor samples. **Figure 2** shows the number of VOCs detected in different environments. There were over 150 VOCs unique to the outdoor environment, while over 700 VOCs were unique to the indoor environment.

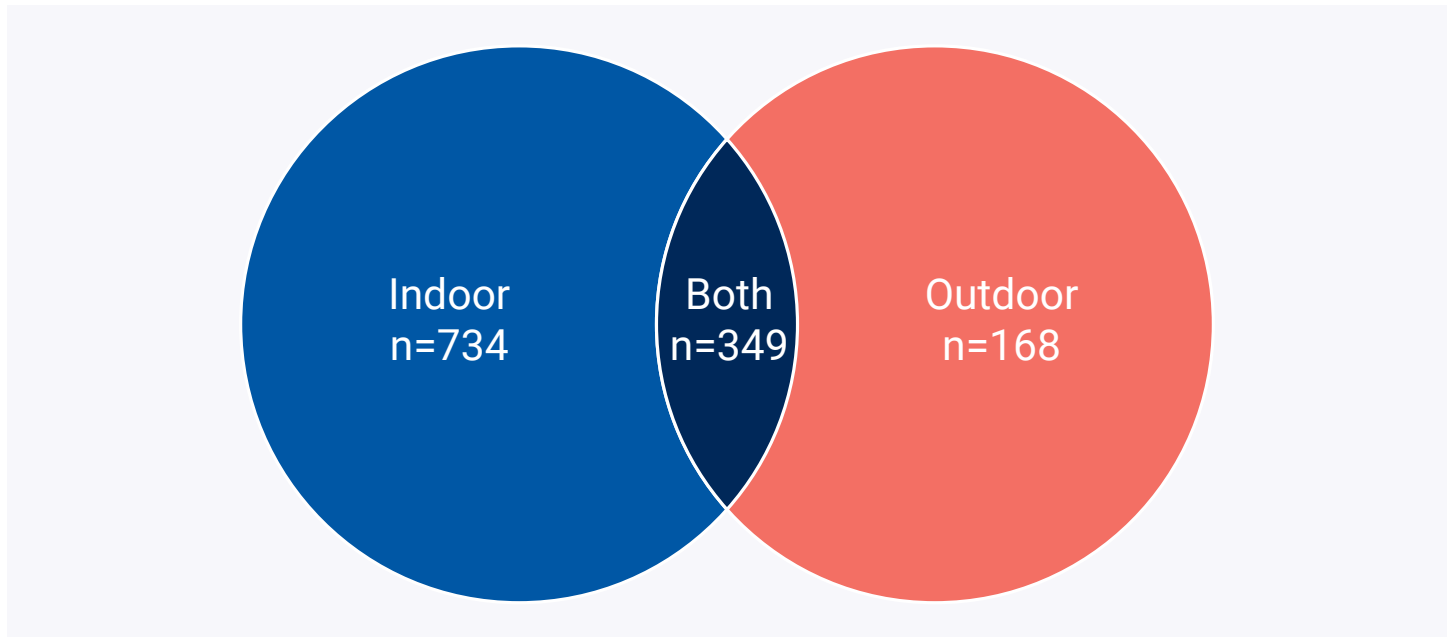


Figure 2: Venn diagram of detected VOCs in indoor and outdoor samples.

Table 1 lists the top 25 most frequently detected VOCs from each environment with their detection frequencies in descending order. Fifteen of the thirty-five listed VOCs were in the top 25 list for both indoor and outdoor samples, with toluene and decanal always the most frequently detected in both environments. Lists of top 25 VOCs ranked by concentrations for both indoor and outdoor of each home are in **Appendix A. Table A1**.

The indoor/outdoor (I/O) ratios of VOCs that are detected in over 90% of the samples are listed in **Table 2**. The averages and medians of the I/O ratios across all homes were larger than one, indicating generally these VOCs had higher concentrations indoors than outdoors. These higher indoor VOC concentrations are associated with indoor sources. For example, decamethylcyclopentasiloxane (D5) had the highest average I/O ratio. This VOC is often associated with personal care products such as deodorants and cleaners with waxes and sealants. There were also cases where the minimum I/O ratios were below one, showing outdoor concentrations higher than indoors, which could be due to the outdoor combustion or other emission sources near the homes. Nonanal was not detected in outdoor samples during the October trips thus the ratios were not calculated, indicated as NA in **Table 2**.

Table 1: Top 25 frequently detected VOCs indoors and outdoors.

Indoor			Outdoor		
CAS	Chemical	Freq. (%)	CAS	Chemical	Freq. (%)
108-88-3	Toluene (Methylbenzene)	100	108-88-3	Toluene (Methylbenzene)	98.6
112-31-2	Decanal	97.3	112-31-2	Decanal	95.7
541-02-6	Cyclopentasiloxane, decamethyl	97.3	124-19-6	Nonyl aldehyde (Nonanal)	91.4
75-07-0	Acetaldehyde	93.2	50-00-0	Formaldehyde	91.4
124-19-6	Nonyl aldehyde (Nonanal)	91.8	75-07-0	Acetaldehyde	88.6
50-00-0	Formaldehyde	91.8	65-85-0	Benzoic Acid	82.9
64-19-7	Acetic acid	90.4	541-02-6	Cyclopentasiloxane, decamethyl	80.0
104-76-7	1-Hexanol, 2-ethyl	90.4	98-86-2	Acetophenone (Ethanone, 1-phenyl)	78.6
141-78-6	Acetate, ethyl	87.7	124-13-0	Octanal	77.1
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	87.7	142-82-5	Heptane	67.1
1330-20-7	Xylenes (Total)	83.6	1330-20-7	Xylenes (Total)	65.7
629-59-4	Tetradecane	82.2	141-78-6	Acetate, ethyl	64.3
111-84-2	Nonane	80.8	71-43-2	Benzene	58.6
629-62-9	Pentadecane	80.8	556-67-2	Cyclotetrasiloxane, octamethyl	55.7
1066-42-8	Silanediol, dimethyl-	80.8	64-19-7	Acetic acid	54.3
57-55-6	1,2-Propanediol (Propylene glycol)	80.8	111-84-2	Nonane	52.9
71-36-3	1-Butanol (N-Butyl alcohol)	78.1	541-05-9	Cyclotrisiloxane, hexamethyl	52.9
544-76-3	Hexadecane (Cetane)	76.7	109-66-0	Pentane	51.4
124-13-0	Octanal	76.7	1066-40-6	Silanol, trimethyl	50.0
64-17-5	Ethanol	74.0	100-41-4	Benzene, ethyl	48.6
66-25-1	Hexanal	74.0	104-76-7	1-Hexanol, 2-ethyl	47.1
556-67-2	Cyclotetrasiloxane, octamethyl	71.2	64-17-5	Ethanol	47.1
123-72-8	Butanal	69.9	80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	47.1
541-05-9	Cyclotrisiloxane, hexamethyl	69.9	71-23-8	1-Propanol (Propyl alcohol)	47.1
100-52-7	Benzaldehyde	69.9	123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	45.7

Table 2: Frequently detected VOCs indoor/outdoor (I/O) ratios.

CAS	Chemical	September-2023 Indoor/Outdoor				October-2023 Indoor/Outdoor			
		Avg.	Min.	Max.	Median	Avg.	Min.	Max.	Median
112-31-2	Decanal	3.70	0.10	10.9	3.04	112	1.51	486	29.4
64-19-7	Acetic acid	6.39	0.40	24.9	4.71	6.92	0.71	19.3	6.25
541-02-6	Cyclopentasiloxane, decamethyl	35.0	0.59	320	5.35	8.47	1.71	20.3	6.01
124-19-6	Nonyl aldehyde (Nonanal)	4.49	0.12	14.3	3.51	NA	NA	NA	NA
108-88-3	Toluene (Methylbenzene)	4.25	0.01	45.1	1.21	2.54	0.19	13.0	1.27
50-00-0	Formaldehyde	3.01	0.20	10.5	2.25	1.72	0.73	4.10	1.03
75-07-0	Acetaldehyde	1.75	0.83	6.50	1.15	3.30	0.94	11.7	2.14
104-76-7	1-Hexanol, 2-ethyl	3.11	0.03	37.9	2.16	4.98	1.12	18.1	4.04

3.3 VOC PROFILES INDOORS

Table 3 lists the top 25 VOCs of highest concentration found in the indoor samples from September and October. Even though the compounds were detected in high concentrations, most of their detection frequencies were low. 2,6,10,14-tetramethyl hexadecane (phytane) ranked as the highest concentration VOCs with maximum concentration at 912 $\mu\text{g}/\text{m}^3$ but the occurrence is only 2.74%. Phytane is commonly found in the environment and originates from petroleum-based products. It is also a breakdown product of chlorophyll in plants and can be released from wood and other processed wood products.⁴ There were only eight compounds in the list with detection frequencies over 50% and they were limonene, decamethyl cyclopentasiloxane, tetradecane, toluene, propylene glycol, octamethyl tetrasiloxane, acetaldehyde, and eucalyptol. These compounds are often associated with personal care products, household cleaning products, and fragrances.⁵

Table 4 shows the summary of the top 25 frequently detected VOCs for the September trips and **Figure 3** shows the concentrations for each home. During the September trips, toluene was detected at all homes with a concentration range of 0.39 to 178 $\mu\text{g}/\text{m}^3$. Toluene is one of the most frequently found VOCs in the indoor environment. In general, for the VOCs with over 50% detection frequency, the variations (standard deviation/mean) were nominally larger than 100%. Some frequently detected VOCs showed relatively high concentrations across all homes, which included formaldehyde, acetaldehyde, decamethylcyclopentasiloxane, nonanal, and limonene. Some other frequently detected VOCs were always detected with relatively lower concentrations, which included nonane, hexadecane, dimethylsilanediol, and benzene. Some less frequently detected VOCs show high concentrations, such as decamethyltetrasiloxane, dipropylene glycol monobutyl ether, 2,5-dimethylundecane, 2-(hexyloxy)ethanol, and dodecamethylpentasiloxane, which were attributed to specific homes. Homes 12, 17, 26, 32, and 33 tended to have higher VOC concentrations in general. Overall, the mean concentrations for the top 25 VOCs were less than 50 $\mu\text{g}/\text{m}^3$.

Table 3: Top 25 VOCs of indoor samples from September and October trips sorted by maximum concentration from high to low.

CAS	Chemical	Max. (µg/m ³)	Median (µg/m ³)	Freq. (%)
638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	912	467	2.74
67-63-0	2-Propanol (Isopropanol)	333	68.6	37.0
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	321	4.08	57.5
541-02-6	Cyclopentasiloxane, decamethyl	320	10.1	97.3
141-63-9	Pentasiloxane, dodecamethyl	251	4.68	27.4
13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	248	11.2	19.2
29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)- (Dipropylene glycol monobutyl ether)	245	3.19	19.2
5131-66-8	2-Propanol, 1-butoxy	222	0.93	17.8
629-59-4	Tetradecane	195	4.90	82.2
108-88-3	Toluene (Methylbenzene)	178	12.8	100
100-79-8	1,3-Dioxolane-4-methanol, 2,2-dimethyl-	160	2.13	23.3
22323-82-6	1,3-Dioxolane-4-methanol, 2,2-dimethyl-, (S)-	145	3.06	9.59
57-55-6	1,2-Propanediol (Propylene glycol)	137	2.07	80.8
141-62-8	Tetrasiloxane, decamethyl	135	8.54	6.85
593-45-3	Octadecane	123	2.99	5.48
127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)	122	2.05	39.7
556-67-2	Cyclotetrasiloxane, octamethyl	110	2.32	71.2
5989-27-5	D-Limonene	108	8.81	26.0
75-07-0	Acetaldehyde	91.7	18.3	93.2
99-85-4	1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-	90.4	3.49	16.4
78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	84.7	7.91	42.5
112-25-4	Ethanol, 2-(hexyloxy)	82.2	31.2	8.22
2756-56-1	Isobornyl propionate	80.3	50.8	4.11
470-82-6	Eucalyptol	71.7	1.65	60.3
115-95-7	Linalyl acetate (1,6-Octadien-3-ol, 3,7-dimethyl-, acetate)	69.6	2.30	32.9

For the seven indoor samples from September with TVOC concentrations greater than LEED green building criteria of 500 $\mu\text{g}/\text{m}^3$, 11 of the top 25 frequently detected VOCs listed in [Table 4](#) were detected in at least four out of the seven homes. They were decamethylcyclopentasiloxane, acetaldehyde, limonene, nonanal, formaldehyde, linalool, tetradecane, 2-tert-butylcyclohexyl acetate, decanal, 2,2,4,6,6-pentamethyl heptane, and toluene. Most of these compounds are commonly used in household cleaning products and fragrances.⁵

Table 4: Summary of the top 25 frequently detected VOCs with their concentrations in September.

CAS	Chemical	Freq. (%)	Mean ($\mu\text{g}/\text{m}^3$)	Min. ($\mu\text{g}/\text{m}^3$)	Max. ($\mu\text{g}/\text{m}^3$)
108-88-3	Toluene (Methylbenzene)	100	17.2	0.39	178
75-07-0	Acetaldehyde	97.3	26.4	12.0	91.7
50-00-0	Formaldehyde	97.3	20.4	5.40	68.4
541-02-6	Cyclopentasiloxane, decamethyl	94.6	36.5	0.72	320
124-19-6	Nonyl aldehyde (Nonanal)	94.6	13.1	2.20	32.3
112-31-2	Decanal	94.6	6.30	1.24	14.2
629-59-4	Tetradecane	91.9	8.24	0.44	78.6
104-76-7	1-Hexanol, 2-ethyl	91.9	4.01	0.22	21.2
141-78-6	Acetate, ethyl	91.9	3.74	0.39	27.5
1330-20-7	Xylenes (Total)	91.9	2.09	0.19	18.7
111-84-2	Nonane	89.2	0.53	0.16	1.43
64-19-7	Acetic acid	86.5	5.85	0.31	35.2
629-62-9	Pentadecane	86.5	5.22	0.29	33.3
544-76-3	Hexadecane (Cetane)	86.5	1.63	0.17	7.20
1066-42-8	Silanediol, dimethyl-	86.5	1.22	0.15	5.64
124-13-0	Octanal	83.8	9.73	1.38	36.6
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	83.8	5.33	0.13	38.4
71-43-2	Benzene	83.8	0.63	0.25	2.82
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	81.1	7.36	0.28	48.6
71-23-8	1-Propanol (Propyl alcohol)	78.4	4.66	0.33	27.2
1066-40-6	Silanol, trimethyl	78.4	3.80	0.25	23.5
142-62-1	Hexanoic acid	78.4	2.37	0.25	7.75
110-27-0	Tetradecanoic acid, 1-methylethyl ester (Isopropyl Myristate)	78.4	1.50	0.29	6.17
112-54-9	Dodecanal	75.7	1.58	0.22	4.67
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl) cyclohexene)	73.0	15.9	0.48	83.5

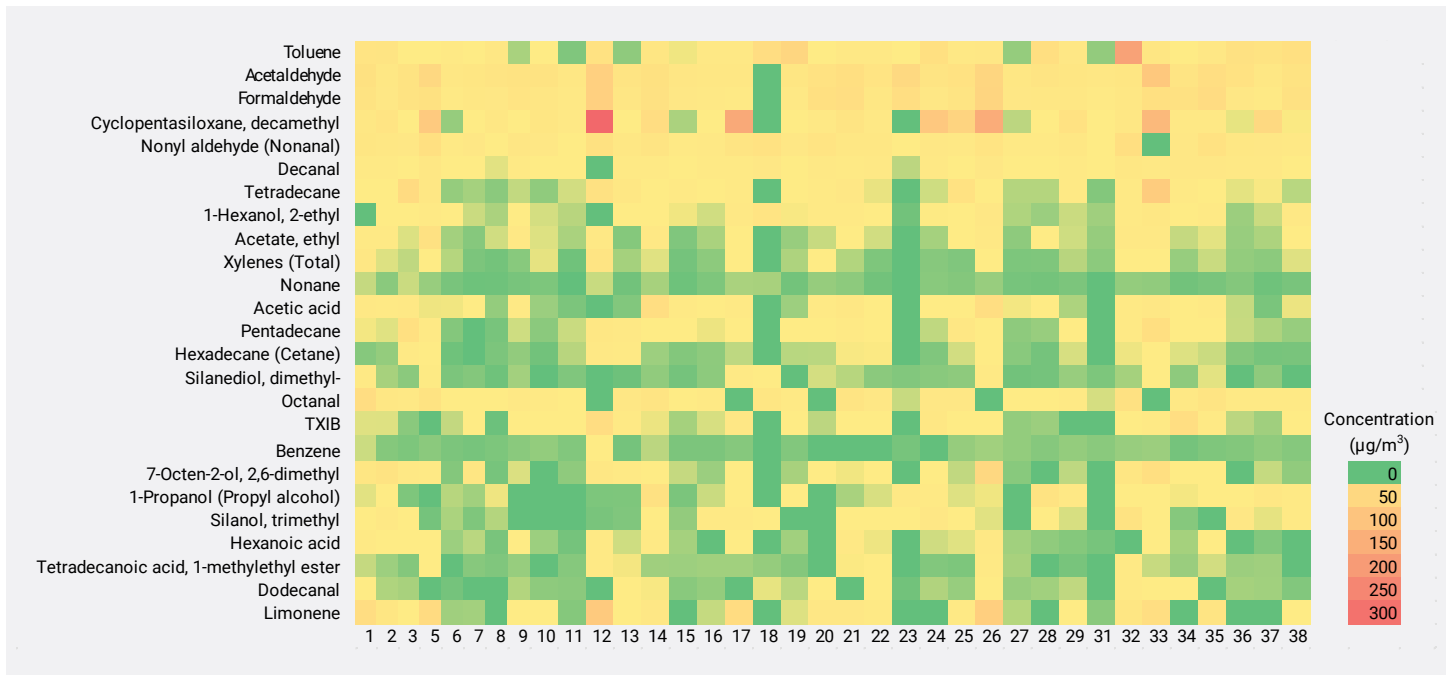


Figure 3: Concentrations of the top 25 frequently detected VOCs at each home in September. Chemicals are sorted from high to low detection frequency.

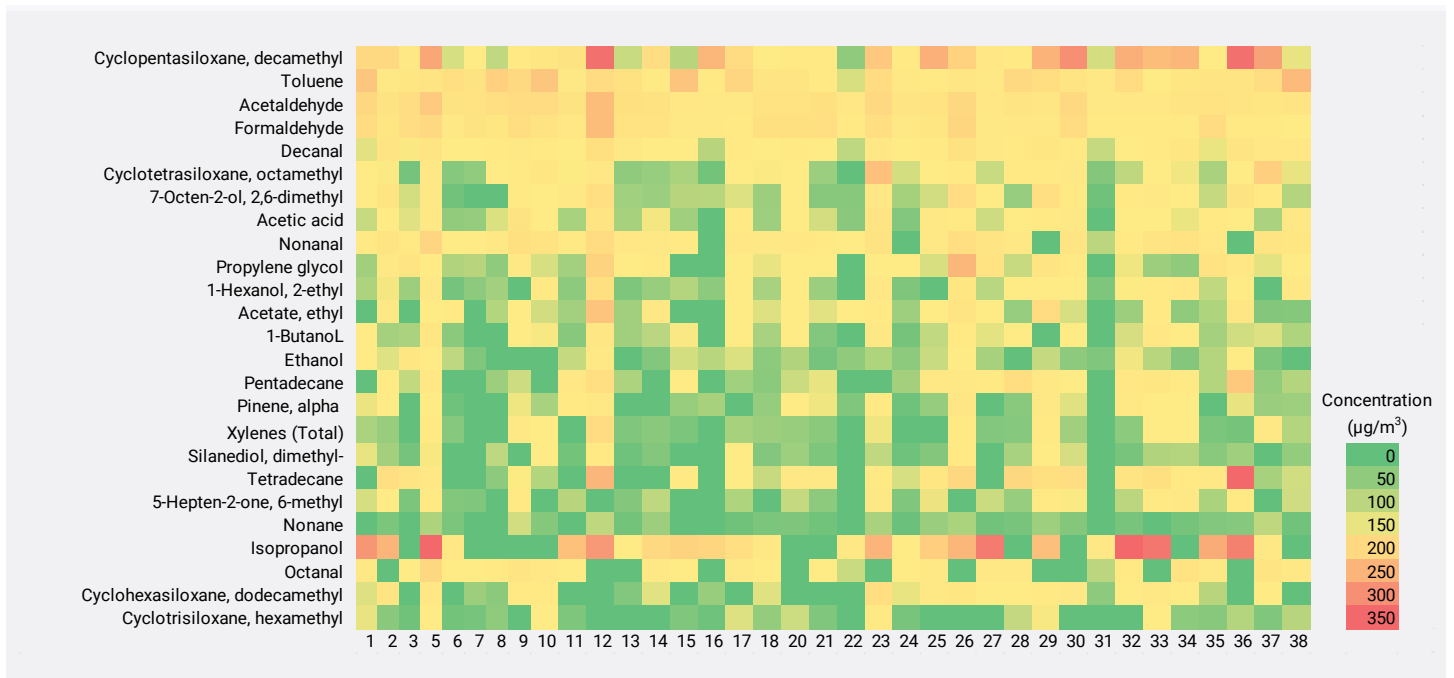


Figure 4: Concentrations of the top 25 frequently detected VOCs at each home in October. Chemicals are sorted from high to low detection frequency.

Table 5 shows the summary of the overall top 25 frequently detected VOCs in October and **Figure 4** shows the concentrations for each home. The October trips showed a similar VOC profile but different VOC ranges. Sixteen of the VOCs in the October top 25 list are also in the September top 25 list, but the average concentration in October ranged from 0.61 to 99.0 $\mu\text{g}/\text{m}^3$ while the September list ranged from 0.53 to 36.5 $\mu\text{g}/\text{m}^3$. Decamethylcyclopentasiloxane, toluene, acetaldehyde, formaldehyde, and decanal were the top five in the list with 100% detection frequency. They were also among the top 10 VOCs in the September list with detection frequency from 95% to 100%. The top 25 VOCs consistently detected in higher concentrations for both September and October were toluene, acetaldehyde, formaldehyde, and nonanal. Although isopropanol was only detected in about 70% of the samples, its average concentration was 99 $\mu\text{g}/\text{m}^3$, which is the highest average concentration in the top 25 frequently detected VOCs (**Table 5**).

For the eight indoor samples from October with TVOC concentrations greater than the LEED green building criteria of 500 $\mu\text{g}/\text{m}^3$, 15 of the top 25 VOCs listed in **Table 5** were detected in at least four out of the eight homes. They were decamethylcyclopentasiloxane, acetaldehyde, 7-Octen-2-ol, 2,6-dimethyl, isopropanol, toluene, limonene, tetradecane, formaldehyde, nonanal, decanal, 2,2,4,6,6-pentamethyl, dodecamethylcyclohexasiloxane (also known as D6), linalool, eucalyptol, and dodecamethyl pentasiloxane. These compounds are also commonly used in household cleaning products and fragrances.

Table 5: Summary of top 25 frequently detected VOCs with their concentrations in October.

CAS	Chemical	Freq. (%)	Mean ($\mu\text{g}/\text{m}^3$)	Min. ($\mu\text{g}/\text{m}^3$)	Max. ($\mu\text{g}/\text{m}^3$)
541-02-6	Cyclopentasiloxane, decamethyl	100	55.2	0.67	238
108-88-3	Toluene (Methylbenzene)	100	24.9	1.72	107
75-07-0	Acetaldehyde	100	23.0	12.0	69.2
50-00-0	Formaldehyde	100	18.3	4.50	68.4
112-31-2	Decanal	100	6.64	1.25	28.8
556-67-2	Cyclotetrasiloxane, octamethyl	97.2	7.26	0.19	110
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	94.4	6.02	0.17	39.5
64-19-7	Acetic acid	94.4	4.19	0.44	22.5
124-19-6	Nonyl aldehyde (Nonanal)	88.9	12.3	1.31	34.1
57-55-6	1,2-Propanediol (Propylene glycol)	88.9	10.3	0.49	137
104-76-7	1-Hexanol, 2-ethyl	88.9	3.76	0.20	18.3
141-78-6	Acetate, ethyl	83.3	6.88	0.67	59.4
71-36-3	1-Butanol (N-Butyl alcohol)	83.3	2.94	0.28	12.7
64-17-5	Ethanol	83.3	1.78	0.27	9.07

Table 5: Summary of top 25 frequently detected VOCs with their concentrations in October.

CAS	Chemical	Freq. (%)	Mean (µg/m ³)	Min. (µg/m ³)	Max. (µg/m ³)
629-62-9	Pentadecane	75.0	8.24	0.59	57.5
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	75.0	3.08	0.14	15.5
1330-20-7	Xylenes (Total)	75.0	2.92	0.32	24.8
1066-42-8	Silanediol, dimethyl-	75.0	1.36	0.13	5.51
629-59-4	Tetradecane	72.2	23.4	0.46	195
110-93-0	5-Hepten-2-one, 6-methyl	72.2	2.47	0.26	9.65
111-84-2	Nonane	72.2	0.61	0.12	2.15
67-63-0	2-Propanol (Isopropanol)	69.4	99.0	2.43	333
124-13-0	Octanal	69.4	7.51	1.31	31.2
540-97-6	Cyclohexasiloxane, dodecamethyl	69.4	5.83	0.33	33.7
541-05-9	Cyclotrisiloxane, hexamethyl	69.4	1.33	0.15	7.03

Chemical profiles are associated with the various sources found indoors. Some examples include cooking, cleaning, painting and renovations, use of personal care products, use of air fresheners (candles, incense, or plug-in fragrances), heating (use of gas or wood-burning stoves), occupancy, opening/closing windows and doors, and smoking. Among the top 25 detected VOCs for September, 14 were likely associated with the use of consumer products (Figure 5). For the October trips, 12 out of the top 25 VOCs were likely to be associated with consumer products (Figure 6). Table 6 summarizes the potential sources of the VOCs that were associated with consumer products. The sources covered in the database, the U.S. EPA's ChemExpo Knowledgebase^{6,7}, were cleaning and household care products, construction and building materials, home maintenance products, and personal care products. Isopropanol was associated with all product categories, followed by ethanol, toluene, and xylenes (total).

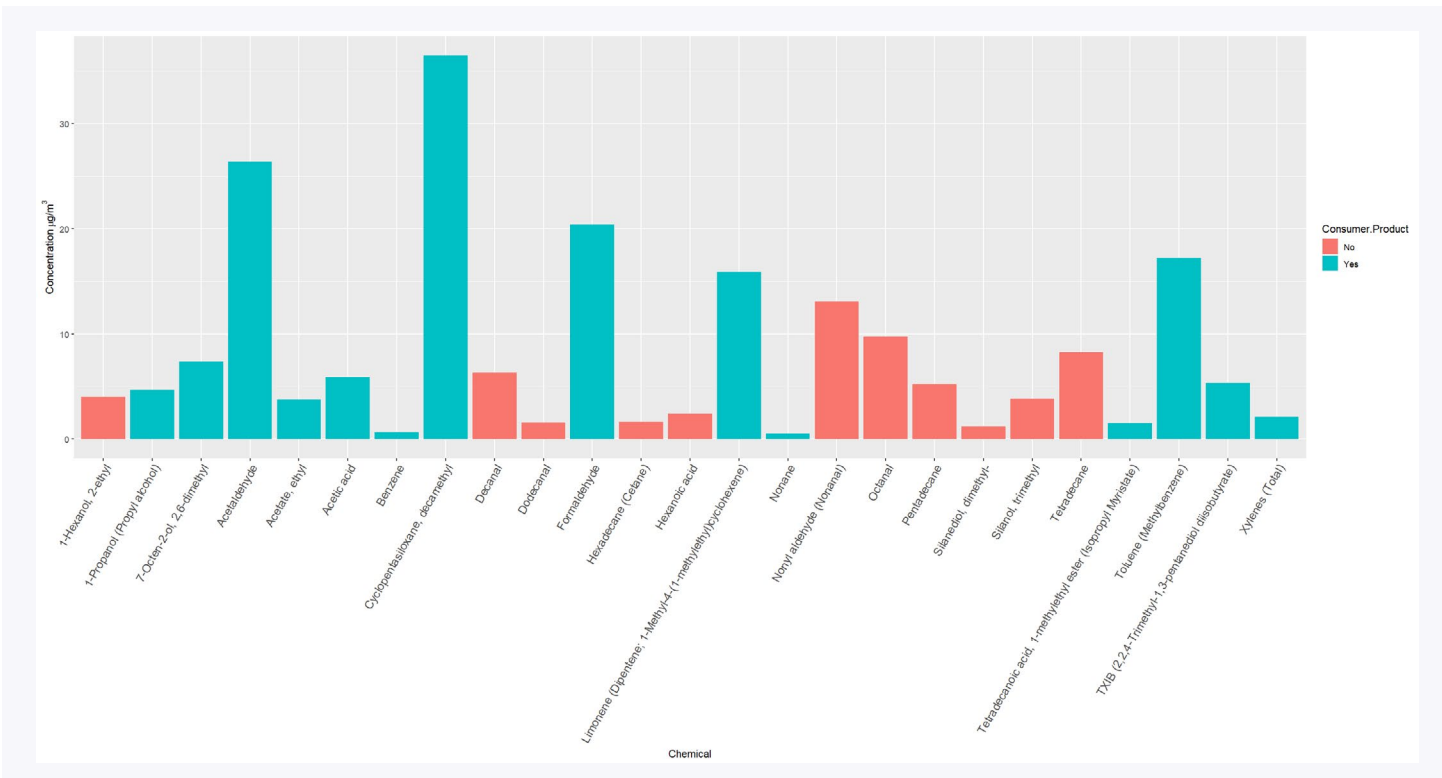


Figure 5: Average concentrations of the top 25 frequently detected VOCs in September. The blue indicates VOCs likely associated with consumer products.

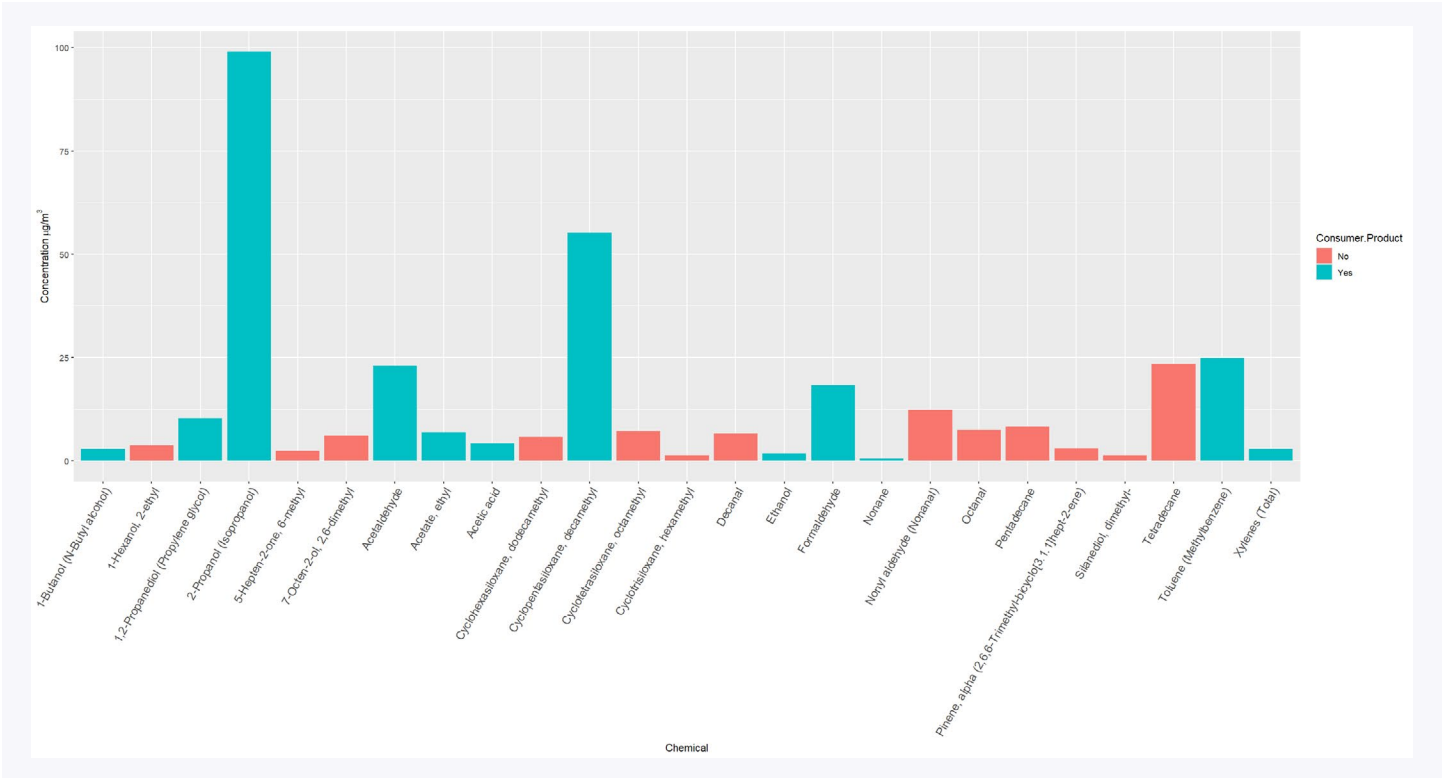


Figure 6: Average concentrations of the top 25 frequently detected VOCs in October. The blue indicates VOCs likely associated with consumer products.

Table 6: Product categories for the sources of VOCs that were commonly detected indoors. “X” indicates the VOC is associated with a specific category.

Chemical	ART	CLN	CON	ELC	FOD	FUR	HOM	LAN	PCP	PST	VHC
Isopropanol	X	X	X	X	X	X	X	X	X	X	X
Ethanol	X	X	X	X	X		X	X	X	X	X
Toluene	X	X	X	X	X	X	X		X		X
Xylenes (Total)	X	X	X		X	X	X	X	X		X
Acetate, ethyl	X	X	X	X	X		X		X		X
Propylene glycol	X	X	X		X		X		X	X	X
Limonene		X	X		X		X		X	X	X
Formaldehyde		X	X			X	X			X	X
1-Butanol	X		X				X		X		X
Acetic acid		X			X	X	X		X		
Benzene		X			X		X		X		X
Acetaldehyde		X		X	X		X				
1-Propanol (Propyl alcohol)	X		X				X				
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate (TXIB)			X				X		X		
Cyclopentasiloxane, decamethyl			X						X		
Nonane							X		X		
7-Octen-2-ol, 2,6-dimethyl		X									
Tetradecanoic acid, 1-methylethyl ester									X		

Note: ART= arts and crafts/office supplies; CLN= cleaning products and household care; CON= construction and building materials; ELC= electronics/ small appliances; FOD= food and drug; FUR= furniture and furnishings; HOM= home maintenance; LAN= landscape/yard; PCP= personal care; PST= pesticides; VHC= vehicle.

3.4 CHEMICALS OF CONCERN (COCS) INDOORS

VOCs that worsen indoor air quality and/or potentially pose health concerns were screened through regulations and guidance documents.⁸⁻¹³ The full list of chemicals of concern (COCs) detected indoors from this study is located in [Appendix B. Table B1](#). According to California (CA) Proposition 65, there were 24 carcinogens, seven developmental toxins, and four male and one female reproductive toxins detected. Based on the International Agency for Research on Cancer (IARC) guidelines, there were three Group 1 carcinogens, four Group 2A probable carcinogens and 19 Group 2B carcinogens. The IARC Groups and CA Proposition 65 are defined in the notes under [Table 7](#). [Table 7](#) lists the hazardous VOCs with a detection frequency of over 70% in the samples, plus any VOCs with levels exceeding the indoor air allowable reference limits. For the most frequently detected COCs, five out of fifteen exceeded the lowest allowable reference levels. Formaldehyde, which is a carcinogen, was detected in over 90% of the samples and 76% of the concentrations were higher than the recommended 9 µg/m³. Other COCs that frequently exceeded indoor air guidance levels were nonanal and octanal.

Table 7: Detected hazardous VOCs that exceeded the lowest allowable reference levels (Min. Ref.).

CAS	Chemical	Freq. (%)	IARC	Prop65	Min. Ref. (µg/m ³)	Exceed (%)
108-88-3	Toluene (Methylbenzene)	100	3	developmental	150 ^[1]	1.37
541-02-6	Cyclopentasiloxane, decamethyl	97.3			1500 ^[2]	
112-31-2	Decanal	97.3			900 ^[2]	
75-07-0	Acetaldehyde	93.2	2B	cancer	70 ^[1]	1.47
124-19-6	Nonyl aldehyde (Nonanal)	91.8			13 ^[3]	43.3
50-00-0	Formaldehyde	91.8	1	cancer	9 ^[1,4]	76.1
104-76-7	1-Hexanol, 2-ethyl	90.4			300 ^[2]	
64-19-7	Acetic acid	90.4			1200 ^[2]	
1330-20-7	Xylenes (Total)	83.6	3		500 ^[2]	
57-55-6	1,2-Propanediol (Propylene glycol)	80.8			2100 ^[2]	
71-36-3	1-Butanol (N-Butyl alcohol)	78.1			3000 ^[2]	
124-13-0	Octanal	76.7			7.2 ^[3]	46.4
64-17-5	Ethanol	74.0	1			
66-25-1	Hexanal	74.0			900 ^[2]	
556-67-2	Cyclotetrasiloxane, octamethyl	71.2			1200 ^[2]	
71-43-2	Benzene	63.0	1	cancer; developmental, male	1.5 ^[1]	8.70

Table 7: Detected hazardous VOCs that exceeded the lowest allowable reference levels (Min. Ref.).

CAS	Chemical	Freq. (%)	IARC	Prop65	Min. Ref. (µg/m ³)	Exceed (%)
98-01-1	Furfural (2-Furaldehyde)	49.3	3		10 ^[2]	33.3
25551-13-7	Trimethylbenzene (All Isomers)	15.1			4 ^[4]	27.2
127-18-4	Ethene, 1,1,2,2-tetrachloro (Tetrachloroethylene)	11.0	2A	cancer	17.5 ^[1]	25.0

Notes:

IARC: WHO International Agency for Research on Cancer. 1: carcinogenic to humans; 2A: probably carcinogenic to humans; 2B: possibly carcinogenic to humans; 3: not classifiable as to its carcinogenicity to humans.⁸

Prop65: California (CA) Office of Environmental Health Hazard Assessment (OEHHA) Proposition 65.⁹

Exceed (%) = number of samples above Min. Ref./number of samples detected × 100%; blank indicates no exceedance.

^[1]CA Specification 01350 maximum allowable concentration (µg/m³).¹³

^[2]AgBB LCI: Ausschuss zur gesundheitlichen Bewertung von Bauprodukten (AgBB) Lowest Concentration of Interest (µg/m³).¹²

^[3]ASHRAE: American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 189.1 maximum concentration of air pollutants relevant to indoor air quality (µg/m³).¹¹

^[4]CA OEHHA REL: CA OEHHA chronic reference exposure levels (µg/m³).¹⁰

4.0 Conclusions

Active air samples were collected for indoor and outdoor environments in 38 homes in Tulare County and VOC and aldehyde concentrations were analyzed. In general, the results showed that indoor environments had higher VOC concentrations than those measured outdoors. The elevated and unique VOCs measured indoors were likely associated with indoor products and activities. The most commonly detected VOCs included toluene, acetaldehyde, formaldehyde, decanal, octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, and nonanal. Other VOCs found in high concentrations, such as 2,6,10,14-tetramethyl hexadecane, isopropanol, limonene, and dodecamethylpentasiloxane, were associated with specific homes. The most frequently detected VOCs indoors were associated with consumer products, such as cleaning products, building materials, home maintenance activities, and personal care products. Hazardous VOCs were detected indoors, including carcinogens and development and reproductive toxins. Nine VOCs exceeded recommended exposure levels including toluene, acetaldehyde, nonanal, formaldehyde, octanal, benzene, furfural, trimethylbenzene, and tetrachloroethylene.

According to the National Interagency Fire Center (NIFC), 2023 saw a record low occurrence of wildfires in the United States, with the fewest number of acres burned in recent years, marking one of the quietest wildfire seasons. Tulare County was not impacted by wildfires in 2023, so the data collected from the September and October trips were not able to show how wildfires could affect VOC profile of indoor and outdoor air. These data are still important to show the baseline indoor VOC profile for homes in Tulare County and could be used for other studies since it is an area frequently impacted by WUI fire events.

5.0 REFERENCES

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Appendix A.

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		1	1	Home #		1	1
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	424	61.8	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	178	128
124-13-0	Octanal	36.6	3.69	108-88-3	Toluene (Methylbenzene)	56.1	72.8
75-07-0	Acetaldehyde	28.9	15.0	50-00-0	Formaldehyde	31.0	4.80
50-00-0	Formaldehyde	23.5	4.80	541-02-6	Cyclopentasiloxane, decamethyl	27.9	4.02
108-88-3	Toluene (Methylbenzene)	19.5	10.2	75-07-0	Acetaldehyde	23.8	15.0
109-66-0	Pentane	17.6		5989-27-5	D-Limonene	15.1	1.02
124-19-6	Nonyl aldehyde (Nonanal)	15.5	4.41	100-79-8	1,3-Dioxolane-4-methanol, 2,2-dimethyl-	11.5	0.57
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	15.0		66-25-1	Hexanal	7.30	
88-41-5	2-tert-Butylcyclohexyl acetate	13.1		1066-40-6	Silanol, trimethyl	5.70	7.09
541-02-6	Cyclopentasiloxane, decamethyl	13.1	0.51	71-23-8	1-Propanol (Propyl alcohol)	5.64	6.51
1330-20-7	Xylenes (Total)	12.5	1.24	124-13-0	Octanal	5.35	2.13
97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester	11.1		29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)- (Dipropylene glycol monobutyl ether)	4.93	
119405-11-7	Tricyclo[4.2.1.1(2,5)]dec-3-en-9-ol, acetate, stereoisomer	10.1		88-41-5	2-tert-Butylcyclohexyl acetate	4.89	0.81
141-63-9	Pentasiloxane, dodecamethyl	9.05		124-19-6	Nonyl aldehyde (Nonanal)	4.04	2.36
64-19-7	Acetic acid	8.37	4.99	100-52-7	Benzaldehyde	3.30	
78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	8.03		140-11-4	Acetic acid, phenylmethyl ester (Benzyl acetate)	2.90	
25551-13-7	Trimethylbenzene (All Isomers)	7.12		556-67-2	Cyclotetrasiloxane, octamethyl	2.73	2.36
112-31-2	Decanal	6.95	2.44	127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)	2.54	
141-78-6	Acetate, ethyl	6.18	1.74	104-55-2	Cinnamic aldehyde (2-Propenal, 3-phenyl-)	2.53	
18479-57-7	2-Octanol, 2,6-dimethyl-	6.04		18479-58-8	7-Octen-2-ol, 2,6-dimethyl	2.40	
100-41-4	Benzene, ethyl	5.87	0.42	78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	2.29	
1000191-08-0	1-Hydroxy-4,4-dimethylcyclohexanecarbonitrile	5.81		134-62-3	N,N-Diethyl-meta-toluamide (DEET)	2.14	
142-62-1	Hexanoic acid	5.28	1.09	123-72-8	Butanal	2.10	
1066-42-8	Silanediol, dimethyl-	5.28	2.09	67-66-3	Chloroform (Trichloromethane)	1.91	
66-25-1	Hexanal	5.00		7452-79-1	Butanoic acid, 2-methyl-, ethyl ester	1.90	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	Home # 2		CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	Home # 2	
		Inside	Outside			Inside	Outside
Trip ID	Trip ID	Sep-2023	Sep-2023	Trip ID	Trip ID	Oct-2023	Oct-2023
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	22.5	0.33	67-63-0	2-Propanol (Isopropanol)	78.5	
67-64-1	Acetone	22.4		32210-23-4	4-tert-Butylcyclohexyl acetate (Vertenex)	61.9	
541-02-6	Cyclopentasiloxane, decamethyl	20.0	0.87	125-12-2	Isobornyl acetate	36.4	
108-88-3	Toluene (Methylbenzene)	19.3	3.32	110-41-8	Undecanal, 2-methyl	28.2	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	15.3	1.00	541-02-6	Cyclopentasiloxane, decamethyl	27.6	0.87
78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	14.5		50-00-0	Formaldehyde	21.5	3.60
124-19-6	Nonyl aldehyde (Nonanal)	13.4	2.41	629-59-4	Tetradecane	19.1	
75-07-0	Acetaldehyde	13.2	12.8	142-92-7	Acetic acid, hexyl ester	18.5	
1000447-36-7	6-Methyl-2-heptanol, 2-methylpropionate	12.9		5413-60-5	4,7-Methano-1H-inden-6-ol, 3a,4,5,6,7,7a-hexahydro-, acetate	14.9	
124-13-0	Octanal	12.5	2.08	470-82-6	Eucalyptol	14.6	
88-41-5	2-tert-Butylcyclohexyl acetate	10.5	0.57	111-13-7	2-Octanone	14.2	
50-00-0	Formaldehyde	9.90	4.40	78-69-3	3-Octanol, 3,7-dimethyl-	13.6	
1066-40-6	Silanol, trimethyl	7.65	2.46	76-22-2	Camphor	13.4	
540-97-6	Cyclohexasiloxane, dodecamethyl	7.51		540-97-6	Cyclohexasiloxane, dodecamethyl	11.8	
100-52-7	Benzaldehyde	7.40		140-11-4	Acetic acid, phenylmethyl ester (Benzyl acetate)	11.1	
141-78-6	Acetate, ethyl	6.84	1.10	18479-58-8	7-Octen-2-ol, 2,6-dimethyl	10.8	
127-51-5	α -Isomethyl ionone	6.78		124-19-6	Nonyl aldehyde (Nonanal)	10.5	2.03
112-31-2	Decanal	6.48	2.65	112-31-2	Decanal	10.4	1.21
64-19-7	Acetic acid	6.03	1.28	101-84-8	Benzene, 1,1'-oxybis- (Diphenyl ether)	10.1	
57545-63-8	4-sec-Butoxy-2-butanone	5.08		142-19-8	Allyl heptanoate	9.65	
106-62-7	1-Propanol, 2-(2-hydroxypropoxy)	5.02		98-52-2	Cyclohexanol, 4-(1,1-dimethylethyl)	8.80	
104-76-7	1-Hexanol, 2-ethyl	4.32	1.26	75-07-0	Acetaldehyde	8.20	3.80
1000367-08-6	1-(1-Methoxypropan-2-yloxy)propan-2-yl acetate	4.26		39255-32-8	Pentanoic acid, 2-methyl-, ethyl ester	7.37	
32210-23-4	4-tert-Butylcyclohexyl acetate (Vertenex)	3.86		7452-79-1	Butanoic acid, 2-methyl-, ethyl ester	7.32	
53951-43-2	1,3-Dioxolane-2-methanol, 2,4-dimethyl-	3.76		79-09-4	Propanoic acid	6.92	

Note: Outdoor samples co-located with Home 3.

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

	Home #	3	3		Home #	3	3
	Inside or Outside	Inside	Outside		Inside or Outside	Inside	Outside
	Trip ID	Sep-2023	Sep-2023		Trip ID	Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	262	35.5	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	93.9	14.6
629-59-4	Tetradecane	43.0	0.96	67-64-1	Acetone	19.4	0.74
629-62-9	Pentadecane	30.0		50-00-0	Formaldehyde	15.9	3.60
50-00-0	Formaldehyde	22.9		57-55-6	1,2-Propanediol (Propylene glycol)	12.5	
75-07-0	Acetaldehyde	21.9		629-59-4	Tetradecane	11.4	
67-64-1	Acetone	21.5		75-07-0	Acetaldehyde	11.1	3.80
79-09-4	Propanoic acid	12.8		108-88-3	Toluene (Methylbenzene)	10.0	2.85
124-19-6	Nonyl aldehyde (Nonanal)	9.86	2.41	64-17-5	Ethanol	9.10	
124-13-0	Octanal	8.10	2.08	541-02-6	Cyclopentasiloxane, decamethyl	5.81	0.87
64-19-7	Acetic acid	8.04	1.28	66-25-1	Hexanal	4.00	
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	7.63	0.33	127-43-5	1-Penten-3-one, 1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-	3.99	
78-94-4	Methyl vinyl ketone (3-Buten-2-one)	5.69		79-09-4	Propanoic acid	3.98	
544-76-3	Hexadecane (Cetane)	5.58		127-51-5	a-Isomethyl ionone	3.86	
617-94-7	Benzenemethanol, a,a-dimethyl-	5.23	1.62	109-67-1	1-Pentene	3.78	0.55
125-12-2	Isobornyl acetate	4.43		124-19-6	Nonyl aldehyde (Nonanal)	3.34	2.03
104-76-7	1-Hexanol, 2-ethyl	4.13	1.26	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	2.82	5.11
123-86-4	Acetate, butyl	4.13	0.63	123-38-6	Propanal	2.60	
541-02-6	Cyclopentasiloxane, decamethyl	4.05	0.87	1000447-36-7	6-Methyl-2-heptanol, 2-methylpropionate	2.49	
66-25-1	Hexanal	4.00	0.23	124-13-0	Octanal	2.35	
112-31-2	Decanal	4.00	2.65	13828-37-0	Cyclohexanemethanol, 4-(1-methylethyl)-, cis-	2.29	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	3.75	1.00	54832-82-5	Tricyclo[4.3.0.0(7,9)]nonane, 2,2,5,5,8,8-hexamethyl-, (1a,6a,7a,9a)-	2.22	
108-88-3	Toluene (Methylbenzene)	3.74	3.32	78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	2.07	
5877-42-9	1-Octyn-3-ol, 4-ethyl	3.66		125-12-2	Isobornyl acetate	2.05	
32210-23-4	4-tert-Butylcyclohexyl acetate (Vertenex)	3.66		112-31-2	Decanal	1.65	1.21
1000142-19-7	2,4-Pentadien-1-ol, 3-pentyl-, (2Z)-	3.41		5413-60-5	4,7-Methano-1H-inden-6-ol, 3a,4,5,6,7,7a-hexahydro-, acetate	1.61	
98-86-2	Acetophenone (Ethanone, 1-phenyl)	3.38	1.65	24851-98-7	3-Oxo-2-pentylcyclopentane acetate, methyl (Methyl dihydrojasmonate; Hedione)	1.44	

Note: Outdoor samples co-located with Home 2.

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

	Home #	5	5		Home #	5	5
	Inside or Outside	Inside	Outside		Inside or Outside	Inside	Outside
	Trip ID	Sep-2023	Sep-2023		Trip ID	Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	648	54.1	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	475	78.2
541-02-6	Cyclopentasiloxane, decamethyl	86.2	0.98	67-63-0	2-Propanol (Isopropanol)	186	
75-07-0	Acetaldehyde	50.3	13.8	541-02-6	Cyclopentasiloxane, decamethyl	98.8	6.46
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	42.4	1.85	75-07-0	Acetaldehyde	52.6	8.80
124-19-6	Nonyl aldehyde (Nonanal)	29.2	2.61	111-76-2	Ethanol, 2-butoxy	39.7	
50-00-0	Formaldehyde	28.0	6.50	124-19-6	Nonyl aldehyde (Nonanal)	34.1	8.81
141-78-6	Acetate, ethyl	27.5	4.03	124-13-0	Octanal	31.2	6.64
124-13-0	Octanal	23.0	3.02	50-00-0	Formaldehyde	28.8	7.00
125-12-2	Isobornyl acetate	22.0	0.26	66-25-1	Hexanal	25.1	
57-55-6	1,2-Propanediol (Propylene glycol)	19.6		5989-27-5	D-Limonene	16.9	6.19
4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	18.1		108-88-3	Toluene (Methylbenzene)	12.8	3.89
107-50-6	Cycloheptasiloxane, tetradecamethyl-	14.5		125-12-2	Isobornyl acetate	11.3	0.95
112-31-2	Decanal	12.9	1.37	112-31-2	Decanal	10.5	6.13
556-68-3	Cyclooctasiloxane, hexadecamethyl-	12.8	1.62	71-36-3	1-Butanol (N-Butyl alcohol)	9.14	
629-59-4	Tetradecane	12.4	0.78	142-62-1	Hexanoic acid	8.89	
78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	11.2		78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	8.60	
66-25-1	Hexanal	10.3		127-51-5	a-Isomethyl ionone	8.27	
1000197-08-4	1-Cyclohexene, 1,3,3-trimethyl-2-(1-methylbut-1-en-3-on-1-yl)	9.71		689-67-8	5,9-Undecadien-2-one, 6,10-dimethyl-	8.20	
19095-24-0	Octasiloxane,1,1,3,3,5,5,7,7,9,11,11,13,13,15,15-hexadecamethyl	9.08		629-62-9	Pentadecane	7.87	
127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)	8.57		540-97-6	Cyclohexasiloxane, dodecamethyl	7.78	3.41
1000132-07-4	Indan-1,3-diol monoacetate	7.96		629-59-4	Tetradecane	7.51	0.89
556-71-8	Cyclononasiloxane, octadecamethyl-	7.83		18479-58-8	7-Octen-2-ol, 2,6-dimethyl	6.35	
99-85-4	1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-	7.80		127-43-5	1-Penten-3-one, 1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-	6.18	
556-67-2	Cyclotetrasiloxane, octamethyl	7.57	0.62	6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentenediol diisobutyrate)	6.12	
541-01-5	Heptasiloxane, hexadecamethyl-	7.51		104-76-7	1-Hexanol, 2-ethyl	6.07	
127-51-5	a-Isomethyl ionone	7.40		470-82-6	Eucalyptol	5.78	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

	Home #	6	6		Home #	6	6
	Inside or Outside	Inside	Outside		Inside or Outside	Inside	Outside
	Trip ID	Sep-2023	Sep-2023		Trip ID	Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	57.6	97.8	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	43.6	101
75-07-0	Acetaldehyde	14.1	16.9	108-88-3	Toluene (Methylbenzene)	19.1	1.47
124-19-6	Nonyl aldehyde (Nonanal)	6.05	1.98	67-63-0	2-Propanol (Isopropanol)	8.24	
108-88-3	Toluene (Methylbenzene)	5.71	63.5	109-67-1	1-Pentene	7.17	
50-00-0	Formaldehyde	5.60	27.4	50-00-0	Formaldehyde	7.00	4.20
124-13-0	Octanal	4.26	2.38	75-07-0	Acetaldehyde	6.10	5.30
112-31-2	Decanal	4.03	0.87	141-78-6	Acetate, ethyl	3.57	5.31
65-85-0	Benzoic Acid	2.60	2.41	67-64-1	Acetone	3.04	0.77
104-76-7	1-Hexanol, 2-ethyl	2.27	1.05	124-19-6	Nonyl aldehyde (Nonanal)	2.98	
64-19-7	Acetic acid	1.99	1.42	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	2.79	0.99
112-34-5	Ethanol, 2-(2-butoxyethoxy)	1.72		112-31-2	Decanal	1.90	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	1.33		124-13-0	Octanal	1.87	
111-71-7	Heptanal (Heptaldehyde)	1.26	0.56	352-33-0	Benzene, 1-chloro-4-fluoro-	1.51	
21129-27-1	Cyclohexanol, 1-methyl-4-(1-methylethyl)-	1.25		71-23-8	1-Propanol (Propyl alcohol)	1.30	
108-95-2	Phenol	1.19	1.51	541-02-6	Cyclopentasiloxane, decamethyl	1.24	0.40
71-23-8	1-Propanol (Propyl alcohol)	1.17	9.04	125-12-2	Isobornyl acetate	0.99	
1330-20-7	Xylenes (Total)	1.16	1.14	64-17-5	Ethanol	0.98	0.28
98-86-2	Acetophenone (Ethanone, 1-phenyl)	1.15	1.39	1000396-22-4	2,5-cyclohexadiene-1,4-dione, 2-(1,1-dimethylethyl)-5-(2-methyl-2-propen-1-yl)-	0.95	0.78
112-05-0	Nonanoic acid	1.08		57-55-6	1,2-Propanediol (Propylene glycol)	0.86	
2371-19-9	2-Heptanone, 3-methyl	1.04		29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)- (Dipropylene glycol monobutyl ether)	0.72	
1066-40-6	Silanol, trimethyl	1.02		123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	0.70	
78871-04-2	Propanal, 2-(benzoyloxy)-, (R)-	1.01	1.15	138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	0.67	0.22
57-55-6	1,2-Propanediol (Propylene glycol)	1.01		78-69-3	3-Octanol, 3,7-dimethyl-	0.58	
141-78-6	Acetate, ethyl	0.90	0.64	18908-66-2	Heptane, 3-(bromomethyl)-	0.54	
95-16-9	Benzothiazole	0.87		64-19-7	Acetic acid	0.52	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	0.86	1.14	71-36-3	1-Butanol (N-Butyl alcohol)	0.44	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

	Home #	7	7		Home #	7	7
	Inside or Outside	Inside	Outside		Inside or Outside	Inside	Outside
	Trip ID	Sep-2023	Sep-2023		Trip ID	Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	108	45.6	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	28.6	38.1
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	16.1		108-88-3	Toluene (Methylbenzene)	14.0	20.1
75-07-0	Acetaldehyde	15.8	14.1	50-00-0	Formaldehyde	10.00	4.70
50-00-0	Formaldehyde	14.1	5.20	75-07-0	Acetaldehyde	5.50	4.70
124-19-6	Nonyl aldehyde (Nonanal)	9.55	2.29	66-25-1	Hexanal	4.20	
1940-19-8	Cyclohexanol, 1-ethenyl-	7.86		123-72-8	Butanal	2.90	
66-25-1	Hexanal	4.70		124-19-6	Nonyl aldehyde (Nonanal)	2.86	1.47
64-19-7	Acetic acid	4.34	1.22	541-02-6	Cyclopentasiloxane, decamethyl	2.83	1.87
20685-45-4	3-Hexen-2-one, 3,4-dimethyl-, (Z)-	3.87		124-13-0	Octanal	2.24	1.05
71-36-3	1-Butanol (N-Butyl alcohol)	3.79		67-64-1	Acetone	2.22	
124-13-0	Octanal	3.66	1.80	112-31-2	Decanal	1.82	1.30
112-31-2	Decanal	3.28	1.54	1066-40-6	Silanol, trimethyl	0.98	1.50
541-02-6	Cyclopentasiloxane, decamethyl	3.27	0.46	57-55-6	1,2-Propanediol (Propylene glycol)	0.93	
123-72-8	Butanal	2.90		61141-72-8	Dodecane, 4,6-dimethyl	0.78	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	2.70		540-97-6	Cyclohexasiloxane, dodecamethyl	0.62	1.09
112-34-5	Ethanol, 2-(2-butoxyethoxy)	2.59		64-19-7	Acetic acid	0.56	
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	2.55	4.76	5989-27-5	D-Limonene	0.52	
134-62-3	N,N-Diethyl-meta-toluamide (DEET)	2.21		556-67-2	Cyclotetrasiloxane, octamethyl	0.50	0.73
108-88-3	Toluene (Methylbenzene)	2.17	18.2	5877-42-9	1-Octyn-3-ol, 4-ethyl	0.47	
343855-44-7	o-Menthan-8-ol	1.83		104-76-7	1-Hexanol, 2-ethyl	0.47	
1635-02-5	3-Hexen-2-one, 3,4-dimethyl-	1.75		111-71-7	Heptanal (Heptaldehyde)	0.38	
111-71-7	Heptanal (Heptaldehyde)	1.71		2051-30-1	Octane, 2,6-dimethyl	0.32	
65-85-0	Benzoic Acid	1.62	2.66	64-17-5	Ethanol	0.32	0.38
70130-95-9	5-Hexenal, 4-(acetyloxy)-4-methyl-, (+-)-	1.55		110-93-0	5-Hepten-2-one, 6-methyl	0.31	
88-41-5	2-tert-Butylcyclohexyl acetate	1.51		15356-70-4	Cyclohexanol, 5-methyl-2-(1-methylethyl)-, (1a,2a,5a)-(+/-) (Menthol)	0.24	
104-76-7	1-Hexanol, 2-ethyl	1.44	1.52	541-05-9	Cyclotrisiloxane, hexamethyl	0.22	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		8	8	Home #		8	8
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	61.1	93.3	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	81.0	9.24
75-07-0	Acetaldehyde	18.8	20.1	108-88-3	Toluene (Methylbenzene)	41.4	5.30
108-88-3	Toluene (Methylbenzene)	13.8	19.5	75-07-0	Acetaldehyde	18.8	20.1
541-02-6	Cyclopentasiloxane, decamethyl	13.7	3.60	50-00-0	Formaldehyde	9.50	9.10
50-00-0	Formaldehyde	9.50	9.10	124-19-6	Nonyl aldehyde (Nonanal)	7.19	1.27
123-72-8	Butanal	5.60		123-72-8	Butanal	5.60	
65-85-0	Benzoic Acid	5.54	7.78	65-85-0	Benzoic Acid	4.60	
124-19-6	Nonyl aldehyde (Nonanal)	4.31	4.52	75-09-2	Methylene chloride (Dichloromethane)	3.88	
124-13-0	Octanal	2.65	4.37	124-13-0	Octanal	3.73	1.16
71-23-8	1-Propanol (Propyl alcohol)	1.96	1.41	112-31-2	Decanal	3.47	0.35
123-38-6	Propanal	1.90	2.20	67-66-3	Chloroform (Trichloromethane)	2.35	
112-31-2	Decanal	1.78	1.35	556-67-2	Cyclotetrasiloxane, octamethyl	2.08	0.94
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	1.67	0.93	123-38-6	Propanal	1.90	2.20
141-78-6	Acetate, ethyl	1.51	2.46	71-23-8	1-Propanol (Propyl alcohol)	1.66	
109-66-0	Pentane	1.39	11.9	111-71-7	Heptanal (Heptaldehyde)	1.36	
98-86-2	Acetophenone (Ethanone, 1-phenyl)	1.22	4.96	64-19-7	Acetic acid	1.30	
541-05-9	Cyclotrisiloxane, hexamethyl	1.20	1.43	107-31-3	Formic acid, methyl ester (Methyl formate)	1.08	
1066-40-6	Silanol, trimethyl	1.13		98-86-2	Acetophenone (Ethanone, 1-phenyl)	1.03	
104-76-7	1-Hexanol, 2-ethyl	1.01	6.27	541-02-6	Cyclopentasiloxane, decamethyl	1.00	0.52
617-94-7	Benzenemethanol, a,a-dimethyl-	1.00	3.24	1074-12-0	Phenylglyoxal	0.98	
556-67-2	Cyclotetrasiloxane, octamethyl	0.89	1.00	1066-42-8	Silanediol, dimethyl-	0.98	
5888-33-5	2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-	0.88	0.51	123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	0.88	
78-93-3	2-Butanone (Methyl ethyl ketone, MEK)	0.85	0.84	141-78-6	Acetate, ethyl	0.87	
99-87-6	Benzene, 1-methyl-4-(1-methylethyl) (p-Cymene; 4-Isopropyltoluene)	0.81	1.80	595-41-5	3-Pentanol, 2,3-dimethyl	0.86	
57-55-6	1,2-Propanediol (Propylene glycol)	0.79		532-55-8	Benzoyl isothiocyanate	0.80	
111-71-7	Heptanal (Heptaldehyde)	0.70	0.72	36122-35-7	Phenylmaleic anhydride	0.73	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

	Home #	9	9		Home #	9	9
	Inside or Outside	Inside	Outside		Inside or Outside	Inside	Outside
	Trip ID	Sep-2023	Sep-2023		Trip ID	Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	130	11.2	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	433	36.8
75-07-0	Acetaldehyde	24.1	14.6	108-88-3	Toluene (Methylbenzene)	27.8	4.00
50-00-0	Formaldehyde	21.0	6.10	75-07-0	Acetaldehyde	24.1	14.6
124-19-6	Nonyl aldehyde (Nonanal)	14.6	1.65	88-41-5	2-tert-Butylcyclohexyl acetate	22.1	
124-13-0	Octanal	9.06	1.49	50-00-0	Formaldehyde	21.0	6.10
141-78-6	Acetate, ethyl	7.52		115-95-7	Linalyl acetate (1,6-Octadien-3-ol, 3,7-dimethyl-, acetate)	18.4	
112-31-2	Decanal	6.67	0.61	24851-98-7	3-Oxo-2-pentylcyclopentane acetate, methyl (Methyl dihydrojasmonate; Hedione)	18.1	
64-19-7	Acetic acid	6.09	0.43	124-19-6	Nonyl aldehyde (Nonanal)	17.9	4.49
66-25-1	Hexanal	5.50		78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	16.8	
104-76-7	1-Hexanol, 2-ethyl	3.56	1.38	5989-27-5	D-Limonene	16.8	0.57
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	3.18	0.68	110-98-5	2-Propanol, 1,1'-oxybis-(Dipropylene glycol)	15.8	
100-52-7	Benzaldehyde	2.80		106-62-7	1-Propanol, 2-(2-hydroxypropoxy)	14.2	
541-02-6	Cyclopentasiloxane, decamethyl	2.70	0.60	64-19-7	Acetic acid	13.6	
88-41-5	2-tert-Butylcyclohexyl acetate	2.65		124-13-0	Octanal	11.9	2.00
142-62-1	Hexanoic acid	2.44		127-43-5	1-Penten-3-one, 1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-	11.5	
22104-80-9	2-Decen-1-ol	2.32		10339-55-6	3,7-Dimethylnona-1,6-dien-3-ol	11.2	
111-71-7	Heptanal (Heptaldehyde)	2.29		79-09-4	Propanoic acid	8.99	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	2.28		32210-23-4	4-tert-Butylcyclohexyl acetate (Vertenex)	7.17	
617-94-7	Benzenemethanol, a,a-dimethyl-	2.27	1.07	142-62-1	Hexanoic acid	6.92	
98-86-2	Acetophenone (Ethanone, 1-phenyl)	2.21		1000430-72-3	Ethylinalool	6.68	
112-05-0	Nonanoic acid	2.10		14901-07-6	3-Buten-2-one, 4-(2,6,6-trimethyl-1-cyclohexen-1-yl)	6.40	
57-55-6	1,2-Propanediol (Propylene glycol)	1.94		1330-20-7	Xylenes (Total)	6.19	1.24
106-27-4	Butanoic acid, 3-methylbutyl ester	1.82		57-55-6	1,2-Propanediol (Propylene glycol)	6.17	
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	1.78		112-31-2	Decanal	6.15	0.78
629-50-5	Tridecane	1.73		66-25-1	Hexanal	5.50	
123-92-2	1-Butanol, 3-methyl-, acetate	1.69		112-05-0	Nonanoic acid	4.90	

Note: Outdoor samples co-located with Home 38.

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		10	10	Home #		10	10
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	108	42.3	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	182	152
75-07-0	Acetaldehyde	24.1	19.7	108-88-3	Toluene (Methylbenzene)	56.3	130
541-02-6	Cyclopentasiloxane, decamethyl	16.8	1.01	124-19-6	Nonyl aldehyde (Nonanal)	14.9	1.87
50-00-0	Formaldehyde	14.8	9.90	541-02-6	Cyclopentasiloxane, decamethyl	10.1	0.70
124-19-6	Nonyl aldehyde (Nonanal)	11.7	3.39	556-67-2	Cyclotetrasiloxane, octamethyl	9.79	0.92
124-13-0	Octanal	6.75	3.44	124-13-0	Octanal	8.64	1.52
5444-75-7	Benzoic acid, 2-ethylhexyl ester	6.23		75-07-0	Acetaldehyde	8.00	7.80
123-72-8	Butanal	4.70		50-00-0	Formaldehyde	6.60	5.90
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	4.05	0.28	5989-27-5	D-Limonene	5.14	0.82
25498-49-1	Tripropylene glycol methyl ether	3.99		100-79-8	1,3-Dioxolane-4-methanol, 2,2-dimethyl-	4.85	
108-88-3	Toluene (Methylbenzene)	3.75	2.10	123-72-8	Butanal	4.70	
66-25-1	Hexanal	3.60		78-69-3	3-Octanol, 3,7-dimethyl-	3.83	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	3.35	1.44	540-97-6	Cyclohexasiloxane, dodecamethyl	3.82	
65-85-0	Benzoic Acid	3.31	5.01	111-71-7	Heptanal (Heptaldehyde)	3.67	
112-31-2	Decanal	3.14	2.69	66-25-1	Hexanal	3.60	
1000367-08-4	1-(1-Butoxypropan-2-yloxy)propan-2-yl acetate	3.03		6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	3.55	
5451-76-3	Ethanol, 2-butoxy-, benzoate	2.59		112-31-2	Decanal	3.44	1.27
123-38-6	Propanal	2.30	2.00	104-76-7	1-Hexanol, 2-ethyl	3.29	
111-71-7	Heptanal (Heptaldehyde)	2.14	0.73	5444-75-7	Benzoic acid, 2-ethylhexyl ester	3.18	
25551-13-7	Trimethylbenzene (All Isomers)	2.00	1.92	125-12-2	Isobornyl acetate	2.52	
2216-51-5	L-(-)-Menthol	1.91		65-85-0	Benzoic Acid	2.45	1.11
1330-20-7	Xylenes (Total)	1.83	1.94	1330-20-7	Xylenes (Total)	2.44	0.65
464-49-3	Bicyclo[2.2.1]heptan-2-one, 1,7,7-trimethyl-, (1R)	1.70		119-36-8	Benzoic acid, 2-hydroxy-, methyl ester	2.35	
141-78-6	Acetate, ethyl	1.70	1.21	98-56-6	Benzene, 1-chloro-4-(trifluoromethyl)-	2.30	
96-08-2	7-Oxabicyclo[4.1.0]heptane, 1-methyl-4-(2-methyloxiranyl)-	1.61	2.42	123-38-6	Propanal	2.30	2.00
541-05-9	Cyclotrisiloxane, hexamethyl	1.57	1.64	64-19-7	Acetic acid	2.19	0.55

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

	Home #	11	11		Home #	11	11
	Inside or Outside	Inside	Outside		Inside or Outside	Inside	Outside
	Trip ID	Sep-2023	Sep-2023		Trip ID	Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	78.8	36.7	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	167	47.8
75-07-0	Acetaldehyde	24.1	19.7	108-88-3	Toluene (Methylbenzene)	56.3	130
541-02-6	Cyclopentasiloxane, decamethyl	16.8	1.01	124-19-6	Nonyl aldehyde (Nonanal)	14.9	1.87
50-00-0	Formaldehyde	14.8	9.90	541-02-6	Cyclopentasiloxane, decamethyl	10.1	0.70
124-19-6	Nonyl aldehyde (Nonanal)	11.7	3.39	556-67-2	Cyclotetrasiloxane, octamethyl	9.79	0.92
124-13-0	Octanal	6.75	3.44	124-13-0	Octanal	8.64	1.52
5444-75-7	Benzoic acid, 2-ethylhexyl ester	6.23		75-07-0	Acetaldehyde	8.00	7.80
123-72-8	Butanal	4.70		50-00-0	Formaldehyde	6.60	5.90
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	4.05	0.28	5989-27-5	D-Limonene	5.14	0.82
25498-49-1	Tripropylene glycol methyl ether	3.99		100-79-8	1,3-Dioxolane-4-methanol, 2,2-dimethyl-	4.85	
108-88-3	Toluene (Methylbenzene)	3.75	2.10	123-72-8	Butanal	4.70	
66-25-1	Hexanal	3.60		78-69-3	3-Octanol, 3,7-dimethyl-	3.83	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	3.35	1.44	540-97-6	Cyclohexasiloxane, dodecamethyl	3.82	
65-85-0	Benzoic Acid	3.31	5.01	111-71-7	Heptanal (Heptaldehyde)	3.67	
112-31-2	Decanal	3.14	2.69	66-25-1	Hexanal	3.60	
1000367-08-4	1-(1-Butoxypropan-2-yloxy)propan-2-yl acetate	3.03		6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	3.55	
5451-76-3	Ethanol, 2-butoxy-, benzoate	2.59		112-31-2	Decanal	3.44	1.27
123-38-6	Propanal	2.30	2.00	104-76-7	1-Hexanol, 2-ethyl	3.29	
111-71-7	Heptanal (Heptaldehyde)	2.14	0.73	5444-75-7	Benzoic acid, 2-ethylhexyl ester	3.18	
25551-13-7	Trimethylbenzene (All Isomers)	2.00	1.92	125-12-2	Isobornyl acetate	2.52	
2216-51-5	L-(-)-Menthol	1.91		65-85-0	Benzoic Acid	2.45	1.11
1330-20-7	Xylenes (Total)	1.83	1.94	1330-20-7	Xylenes (Total)	2.44	0.65
464-49-3	Bicyclo[2.2.1]heptan-2-one, 1,7,7-trimethyl-, (1R)	1.70		119-36-8	Benzoic acid, 2-hydroxy-, methyl ester	2.35	
141-78-6	Acetate, ethyl	1.70	1.21	98-56-6	Benzene, 1-chloro-4-(trifluoromethyl)-	2.30	
96-08-2	7-Oxabicyclo[4.1.0]heptane, 1-methyl-4-(2-methyloxiranyl)-	1.61	2.42	123-38-6	Propanal	2.30	2.00
541-05-9	Cyclotrisiloxane, hexamethyl	1.57	1.64	64-19-7	Acetic acid	2.19	0.55

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #	12	12	Home #	12	12		
Inside or Outside	Inside	Outside	Inside or Outside	Inside	Outside		
Trip ID	Sep-2023	Sep-2023	Trip ID	Oct-2023	Oct-2023		
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	2233	43.5	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	1778	70.0
541-02-6	Cyclopentasiloxane, decamethyl	320	1.00	541-02-6	Cyclopentasiloxane, decamethyl	176	0.44
141-63-9	Pentasiloxane, dodecamethyl	173		67-63-0	2-Propanol (Isopropanol)	118	
141-62-8	Tetrasiloxane, decamethyl	135		5989-27-5	D-Limonene	108	
13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	116		13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	97.2	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	83.5		50-00-0	Formaldehyde	75.9	3.40
75-07-0	Acetaldehyde	69.2	16.9	629-59-4	Tetradecane	75.4	
50-00-0	Formaldehyde	68.4	6.50	141-63-9	Pentasiloxane, dodecamethyl	60.7	
629-50-5	Tridecane	67.8		141-78-6	Acetate, ethyl	59.4	1.07
628-63-7	Acetic acid, pentyl ester	58.8		75-07-0	Acetaldehyde	52.8	2.50
17301-22-3	Undecane, 2,5-dimethyl	48.7		2756-56-1	Isobornyl propionate	50.8	
4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	44.5		4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	40.1	
88-41-5	2-tert-Butylcyclohexyl acetate	42.5		54832-82-5	Tricyclo[4.3.0.0(7,9)]nonane, 2,2,5,5,8,8-hexamethyl-, (1a,6a,7a,9a)-	37.0	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	38.4		5413-60-5	4,7-Methano-1H-inden-6-ol, 3a,4,5,6,7,7a-hexahydro-, acetate	36.9	
624-41-9	1-Butanol, 2-methyl-, acetate	37.7		57-55-6	1,2-Propanediol (Propylene glycol)	36.4	
1560-97-0	Dodecane, 2-methyl	34.4		6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	34.2	
1000132-07-4	Indan-1,3-diol monoacetate	29.0	4.39	629-50-5	Tridecane	34.1	
107-52-8	Hexasiloxane, tetradecamethyl	28.3		110-27-0	Tetradecanoic acid, 1-methylethyl ester (Isopropyl Myristate)	32.1	
124-19-6	Nonyl aldehyde (Nonanal)	27.7	2.23	101-86-0	a-Hexylcinnamaldehyde [Octanal, 2-(phenylmethylene)]	29.7	
112-40-3	Dodecane	27.6		127-51-5	a-Isomethyl ionone	26.7	
629-59-4	Tetradecane	27.3		123-86-4	Acetate, butyl	26.3	
3891-98-3	Dodecane, 2,6,10-trimethyl	26.9		1330-20-7	Xylenes (Total)	24.8	
56292-65-0	Dodecane, 2,5-dimethyl	25.1		124-19-6	Nonyl aldehyde (Nonanal)	24.7	1.47
108-88-3	Toluene (Methylbenzene)	25.0	11.0	78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	24.4	
286-99-7	13-Oxabicyclo[10.1.0]tridecane	24.2		115-95-7	Linalyl acetate (1,6-Octadien-3-ol, 3,7-dimethyl-, acetate)	24.2	
127-51-5	a-Isomethyl ionone	23.3		108-88-3	Toluene (Methylbenzene)	23.7	6.56

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

	Home #	13	13		Home #	13	13
	Inside or Outside	Inside	Outside		Inside or Outside	Inside	Outside
	Trip ID	Sep-2023	Sep-2023		Trip ID	Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	244	55.4	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	100	20.3
75-07-0	Acetaldehyde	18.4	16.6	107-52-8	Hexasiloxane, tetradecamethyl	18.7	
50-00-0	Formaldehyde	14.5	8.80	108-88-3	Toluene (Methylbenzene)	16.7	11.5
124-19-6	Nonyl aldehyde (Nonanal)	13.9	2.82	123-72-8	Butanal	10.7	
100-79-8	1,3-Dioxolane-4-methanol, 2,2-dimethyl-	12.9		541-01-5	Heptasiloxane, hexadecamethyl-	9.41	
629-59-4	Tetradecane	12.7	1.63	50-00-0	Formaldehyde	8.90	4.50
123-72-8	Butanal	10.7		124-19-6	Nonyl aldehyde (Nonanal)	7.74	1.16
88-41-5	2-tert-Butylcyclohexyl acetate	10.5	1.05	123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	6.94	1.46
124-13-0	Octanal	10.3	2.94	66-25-1	Hexanal	5.00	
100-52-7	Benzaldehyde	9.70	2.90	112-31-2	Decanal	4.66	0.77
629-62-9	Pentadecane	8.30	0.78	75-07-0	Acetaldehyde	4.60	4.30
103-60-6	Phenoxy ethyl isobutyrate	8.12		110-27-0	Tetradecanoic acid, 1-methylethyl ester (Isopropyl Myristate)	2.88	
112-31-2	Decanal	6.61	1.60	57-55-6	1,2-Propanediol (Propylene glycol)	2.63	
65-85-0	Benzoic Acid	6.43	7.74	97-64-3	Propanoic acid, 2-hydroxy-, ethyl ester	2.60	
89-48-5	Menthyl acetate	5.50		123-38-6	Propanal	2.60	1.90
66-25-1	Hexanal	5.00		67-63-0	2-Propanol (Isopropanol)	2.43	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	4.91	0.24	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	2.22	2.33
80-54-6	Lilial	4.84		13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	2.19	
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	4.81	0.42	4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	1.97	
544-76-3	Hexadecane (Cetane)	4.71		78-69-3	3-Octanol, 3,7-dimethyl-	1.94	
111-76-2	Ethanol, 2-butoxy	4.55		111-76-2	Ethanol, 2-butoxy	1.70	
1000132-07-4	Indan-1,3-diol monoacetate	4.39		67-64-1	Acetone	1.64	0.81
112-54-9	Dodecanal	4.33	1.02	1000447-36-7	6-Methyl-2-heptanol, 2-methylpropionate	1.57	
1222-05-5	Cyclopenta[g]-2-benzopyran, 1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethyl-	3.93		79-09-4	Propanoic acid	1.32	
1000365-50-6	5-Hydroxymethyl-2,2,5-trimethyl-1,3-dioxane, heptafluorobutyrate	3.88		6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	1.20	
140-11-4	Acetic acid, phenylmethyl ester (Benzyl acetate)	3.87		541-02-6	Cyclopentasiloxane, decamethyl	1.09	0.49

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		14	14	Home #		14	14
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	466	24.7	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	210	75.5
119-36-8	Benzoic acid, 2-hydroxy-, methyl ester	42.5	0.17	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	68.6	16.5
541-02-6	Cyclopentasiloxane, decamethyl	36.8		67-63-0	2-Propanol (Isopropanol)	50.4	
64-19-7	Acetic acid	35.2	2.47	541-02-6	Cyclopentasiloxane, decamethyl	40.0	0.16
23283-97-8	Cyclohexanol, 5-methyl-2-(1-methylethyl)-, [1S-(1a, 2a, 5a)]-	32.0		50-00-0	Formaldehyde	20.1	5.20
75-07-0	Acetaldehyde	28.9	16.8	75-07-0	Acetaldehyde	18.1	6.10
71-23-8	1-Propanol (Propyl alcohol)	27.2	1.76	124-19-6	Nonyl aldehyde (Nonanal)	10.7	0.66
50-00-0	Formaldehyde	27.1	5.90	141-78-6	Acetate, ethyl	10.5	1.59
76-22-2	Camphor	20.2		124-13-0	Octanal	9.90	0.94
140-11-4	Acetic acid, phenylmethyl ester (Benzyl acetate)	18.2		590-86-3	Butanal, 3-methyl	9.10	
124-19-6	Nonyl aldehyde (Nonanal)	18.0	1.98	66-25-1	Hexanal	6.90	
124-13-0	Octanal	17.1	2.56	108-88-3	Toluene (Methylbenzene)	6.87	31.7
108-88-3	Toluene (Methylbenzene)	16.7	7.60	57-55-6	1,2-Propanediol (Propylene glycol)	5.90	
115-95-7	Linalyl acetate (1,6-Octadien-3-ol, 3,7-dimethyl-, acetate)	15.7		79-09-4	Propanoic acid	4.42	
78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	13.8		138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	3.83	
1000447-36-7	6-Methyl-2-heptanol, 2-methylpropionate	11.7		142-62-1	Hexanoic acid	3.58	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	9.55		2497-25-8	2-Decenal, (Z)-	3.43	
590-86-3	Butanal, 3-methyl	9.10		123-92-2	1-Butanol, 3-methyl-, acetate	3.37	
141-78-6	Acetate, ethyl	8.61	1.25	123-72-8	Butanal	3.30	
79-09-4	Propanoic acid	8.60	0.32	111-71-7	Heptanal (Heptaldehyde)	3.24	
88-41-5	2-tert-Butylcyclohexyl acetate	7.88		100-52-7	Benzaldehyde	3.20	
7452-79-1	Butanoic acid, 2-methyl-, ethyl ester	7.86		112-31-2	Decanal	2.98	1.02
67-64-1	Acetone	7.53		110-19-0	Acetic acid, 2-methylpropyl ester (Isobutyl acetate)	2.50	
142-62-1	Hexanoic acid	6.94		64-19-7	Acetic acid	2.14	
112-31-2	Decanal	6.80	1.71	142-82-5	Heptane	2.11	0.45
66-25-1	Hexanal	6.60		123-38-6	Propanal	2.10	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		15	15	Home #		15	15
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	56.8	36.0	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	278	68.3
75-07-0	Acetaldehyde	14.7	13.9	108-88-3	Toluene (Methylbenzene)	107	53.7
50-00-0	Formaldehyde	9.70	5.70	67-63-0	2-Propanol (Isopropanol)	65.2	
64-19-7	Acetic acid	5.42	0.54	75-07-0	Acetaldehyde	14.7	13.9
124-19-6	Nonyl aldehyde (Nonanal)	5.07	1.64	1636-44-8	Decane, 4-ethyl-	11.0	
123-72-8	Butanal	4.90		71-23-8	1-Propanol (Propyl alcohol)	10.2	4.97
629-59-4	Tetradecane	4.63		1066-40-6	Silanol, trimethyl	9.78	4.89
124-13-0	Octanal	3.43	1.94	50-00-0	Formaldehyde	9.70	5.70
21129-27-1	Cyclohexanol, 1-methyl-4-(1-methylethyl)-	3.02		629-50-5	Tridecane	8.35	
78-94-4	Methyl vinyl ketone (3-Buten-2-one)	3.01		1000160-77-0	1-Heptanal, 3,5,5-triethyl-	8.17	
629-62-9	Pentadecane	2.59		127204-12-0	Dodecane, 2,2,11,11-tetramethyl-	8.03	
65-85-0	Benzoic Acid	2.53	3.28	98-86-2	Acetophenone (Ethanone, 1-phenyl)	7.50	1.05
112-31-2	Decanal	2.52	0.83	17312-55-9	Decane, 3,8-dimethyl	6.71	
617-94-7	Benzenemethanol, a,a-dimethyl-	2.01	1.27	487-69-4	Benzaldehyde, 2,4-dihydroxy-6-methyl-	6.34	
104-76-7	1-Hexanol, 2-ethyl	1.99	1.92	629-59-4	Tetradecane	6.20	
108-88-3	Toluene (Methylbenzene)	1.98	10.7	124-19-6	Nonyl aldehyde (Nonanal)	5.79	1.39
98-86-2	Acetophenone (Ethanone, 1-phenyl)	1.43	1.10	125-12-2	Isobornyl acetate	5.30	
100-79-8	1,3-Dioxolane-4-methanol, 2,2-dimethyl-	1.36		17312-57-1	Dodecane, 3-methyl	5.24	
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	1.35		96-76-4	Phenol, 2,4-bis(1,1-dimethylethyl)-	5.20	
1000367-08-6	1-(1-Methoxypropan-2-yloxy) propan-2-yl acetate	1.33		17312-60-6	Undecane, 6-ethyl	4.97	
88-41-5	2-tert-Butylcyclohexyl acetate	1.21		123-72-8	Butanal	4.90	
76-22-2	Camphor	1.11		100-79-8	1,3-Dioxolane-4-methanol, 2,2-dimethyl-	4.85	
108-95-2	Phenol	1.06	0.77	31081-18-2	Nonane, 3-methyl-5-propyl	4.82	
2371-19-9	2-Heptanone, 3-methyl	1.03		17312-75-3	Nonane, 5-methyl-5-propyl	4.78	
541-02-6	Cyclopentasiloxane, decamethyl	1.01		74645-98-0	Dodecane, 2,7,10-trimethyl	4.63	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	0.94		62185-21-1	Octane, 3,4,5,6-tetramethyl-	4.59	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #	16	16	Home #	16	16		
Inside or Outside	Inside	Outside	Inside or Outside	Inside	Outside		
Trip ID	Sep-2023	Sep-2023	Trip ID	Oct-2023	Oct-2023		
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	87.4	49.0	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	219	41.2
75-07-0	Acetaldehyde	12.0	11.7	541-02-6	Cyclopentasiloxane, decamethyl	138	0.37
109-66-0	Pentane	8.83		67-63-0	2-Propanol (Isopropanol)	57.9	
50-00-0	Formaldehyde	7.90	6.00	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	27.7	11.0
108-88-3	Toluene (Methylbenzene)	7.46	5.72	138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	16.2	
124-19-6	Nonyl aldehyde (Nonanal)	7.14	2.60	50-00-0	Formaldehyde	11.0	5.20
124-13-0	Octanal	6.32	3.95	127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)	9.23	
112-31-2	Decanal	6.19	2.82	75-07-0	Acetaldehyde	9.00	6.00
1066-40-6	Silanol, trimethyl	6.00	3.68	108-88-3	Toluene (Methylbenzene)	6.39	20.9
22323-82-6	1,3-Dioxolane-4-methanol, 2,2-dimethyl-, (S)-	4.48	0.33	13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	3.59	
541-02-6	Cyclopentasiloxane, decamethyl	4.03	4.97	1000157-78-2	(-)-cis-Myrtenyl acetate	3.49	
98-86-2	Acetophenone (Ethanone, 1-phenyl)	3.59	3.38	22104-79-6	2-Nonen-1-ol	3.47	
64-19-7	Acetic acid	3.39	1.01	96-08-2	7-Oxabicyclo[4.1.0]heptane, 1-methyl-4-(2-methyloxiranyl)-	2.56	
78-94-4	Methyl vinyl ketone (3-Buten-2-one)	3.21		123-72-8	Butanal	2.10	
65-85-0	Benzoic Acid	2.50	1.29	78-69-3	3-Octanol, 3,7-dimethyl-	1.89	
629-59-4	Tetradecane	2.38	1.20	99-85-4	1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-	1.84	
2371-19-9	2-Heptanone, 3-methyl	2.25	0.55	5131-66-8	2-Propanol, 1-butoxy	1.53	
629-62-9	Pentadecane	1.92	0.44	555-10-2	beta-Phellandrene	1.48	
88-41-5	2-tert-Butylcyclohexyl acetate	1.74		470-82-6	Eucalyptol	1.29	1.75
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	1.60	0.54	112-31-2	Decanal	1.25	
104-76-7	1-Hexanol, 2-ethyl	1.51	0.49	64-17-5	Ethanol	1.23	
71-23-8	1-Propanol (Propyl alcohol)	1.43	2.10	18479-58-8	7-Octen-2-ol, 2,6-dimethyl	1.23	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	1.36		7452-79-1	Butanoic acid, 2-methyl-, ethyl ester	1.01	
6089-04-9	2H-Pyran, tetrahydro-2-(2-propynyloxy)-	1.34		80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	1.01	
6089-04-9	Nonane, 3-methyl	1.34		540-97-6	Cyclohexasiloxane, dodecamethyl	0.80	
67-66-3	Chloroform (Trichloromethane)	1.30		17301-30-3	Undecane, 3,8-dimethyl	0.74	

Note: Outdoor samples co-located with Home 31.

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #	17	17	Home #	17	17		
Inside or Outside	Inside	Outside	Inside or Outside	Inside	Outside		
Trip ID	Sep-2023	Sep-2023	Trip ID	Oct-2023	Oct-2023		
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	597	43.2	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	440	93.0
541-02-6	Cyclopentasiloxane, decamethyl	163	1.59	541-02-6	Cyclopentasiloxane, decamethyl	138	0.37
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	40.8	1.34	67-63-0	2-Propanol (Isopropanol)	57.9	
67-64-1	Acetone	27.2		50-00-0	Formaldehyde	31.7	4.90
124-19-6	Nonyl aldehyde (Nonanal)	18.3	3.42	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	27.7	11.0
4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	15.7		138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	16.2	
540-97-6	Cyclohexasiloxane, dodecamethyl	15.1		75-07-0	Acetaldehyde	9.80	4.60
75-07-0	Acetaldehyde	12.4	12.7	127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)	9.23	
13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	12.4		108-88-3	Toluene (Methylbenzene)	6.39	20.9
80-62-6	Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)	12.3		13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	3.59	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	10.3		1000157-78-2	(-)-cis-Myrtanyl acetate	3.49	
88-41-5	2-tert-Butylcyclohexyl acetate	10.2	0.42	22104-79-6	2-Nonen-1-ol	3.47	
21129-27-1	Cyclohexanol, 1-methyl-4-(1-methylethyl)-	9.16		96-08-2	7-Oxabicyclo[4.1.0]heptane, 1-methyl-4-(2-methyloxiranyl)-	2.56	
108-88-3	Toluene (Methylbenzene)	9.02	1.95	78-69-3	3-Octanol, 3,7-dimethyl-	1.89	
104-76-7	1-Hexanol, 2-ethyl	8.96	4.15	99-85-4	1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-	1.84	
25498-49-1	Tripropylene glycol methyl ether	8.58		5131-66-8	2-Propanol, 1-butoxy	1.53	
20324-32-7	2-Propanol, 1-(2-methoxy-1-methylethoxy)	8.50		555-10-2	beta-Phellandrene	1.48	
123-86-4	Acetate, butyl	8.44	1.81	470-82-6	Eucalyptol	1.29	
13429-07-7	2-Propanol, 1-(2-methoxypropoxy)-	8.32		112-31-2	Decanal	1.25	1.75
78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	6.93		64-17-5	Ethanol	1.23	
1066-40-6	Silanol, trimethyl	6.89	1.32	18479-58-8	7-Octen-2-ol, 2,6-dimethyl	1.23	
53951-43-2	1,3-Dioxolane-2-methanol, 2,4-dimethyl-	6.67		7452-79-1	Butanoic acid, 2-methyl-, ethyl ester	1.01	
64-19-7	Acetic acid	6.38	1.00	80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	1.01	
112-31-2	Decanal	6.36	0.74	540-97-6	Cyclohexasiloxane, dodecamethyl	0.80	
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	6.17		17301-30-3	Undecane, 3,8-dimethyl	0.74	
629-59-4	Tetradecane	5.84	0.84	104-76-7	1-Hexanol, 2-ethyl	0.64	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		18	18	Home #		18	18
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	262	59.8	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	98.6	91.5
108-88-3	Toluene (Methylbenzene)	38.0	30.7	108-88-3	Toluene (Methylbenzene)	19.0	15.3
124-19-6	Nonyl aldehyde (Nonanal)	25.0	2.80	50-00-0	Formaldehyde	15.7	4.90
104-76-7	1-Hexanol, 2-ethyl	21.2	0.56	67-63-0	2-Propanol (Isopropanol)	12.1	
109-66-0	Pentane	18.3	5.57	75-07-0	Acetaldehyde	8.40	4.50
124-13-0	Octanal	15.0	1.18	124-19-6	Nonyl aldehyde (Nonanal)	7.81	1.30
112-31-2	Decanal	10.8	2.36	66-25-1	Hexanal	7.10	
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	10.5	9.06	109-67-1	1-Pentene	5.65	3.62
111-71-7	Heptanal (Heptaldehyde)	4.39	0.28	6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	5.44	
100-52-7	Benzaldehyde	3.40		112-31-2	Decanal	4.65	1.53
112-44-7	Undecanal	3.30	0.30	124-13-0	Octanal	4.34	0.73
1066-40-6	Silanol, trimethyl	2.82	2.54	541-02-6	Cyclopentasiloxane, decamethyl	3.69	
100-42-5	Styrene	2.68	0.30	67-64-1	Acetone	3.68	1.53
124-18-5	Decane	2.45		128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	3.45	3.21
1066-42-8	Silanediol, dimethyl-	2.27	0.28	79-09-4	Propanoic acid	2.49	
112-05-0	Nonanoic acid	1.91		556-67-2	Cyclotetrasiloxane, octamethyl	2.24	
100-41-4	Benzene, ethyl	1.89	0.20	57-55-6	1,2-Propanediol (Propylene glycol)	1.97	
112-54-9	Dodecanal	1.85	0.26	540-97-6	Cyclohexasiloxane, dodecamethyl	1.84	
103-09-3	Acetic acid, 2-ethylhexyl ester	1.77		141-78-6	Acetate, ethyl	1.79	
112-53-8	1-Dodecanol	1.76		629-59-4	Tetradecane	1.45	
3913-02-8	1-Octanol, 2-butyl-	1.61		629-92-5	Nonadecane	1.43	
110-93-0	5-Hepten-2-one, 6-methyl	1.60		71-23-8	1-Propanol (Propyl alcohol)	1.38	
110-82-7	Cyclohexane	1.55		3891-98-3	Dodecane, 2,6,10-trimethyl	1.33	1.05
119405-11-7	Tricyclo[4.2.1.1(2,5)]dec-3-en-9-ol, acetate, stereoisomer	1.51		1000396-22-4	2,5-cyclohexadiene-1,4-dione, 2-(1,1-dimethylethyl)-5-(2-methyl-2-propen-1-yl)-	1.30	0.91
4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	1.21		352-33-0	Benzene, 1-chloro-4-fluoro-	1.18	0.74
111-84-2	Nonane	0.96	0.12	2216-51-5	L-(-)-Menthol	1.16	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		19	19	Home #		19	19
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	173	48.3	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	58.4	
108-88-3	Toluene (Methylbenzene)	54.2	1.20	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)		19.6
75-07-0	Acetaldehyde	15.9	15.7	108-88-3	Toluene (Methylbenzene)		16.3
124-19-6	Nonyl aldehyde (Nonanal)	10.8	3.59	75-07-0	Acetaldehyde		4.80
65-85-0	Benzoic Acid	9.90	13.2	50-00-0	Formaldehyde		4.70
287-92-3	Cyclopentane	9.35	0.39	541-02-6	Cyclopentasiloxane, decamethyl		3.56
50-00-0	Formaldehyde	8.50	8.30	71-43-2	Benzene		2.48
4390-04-9	Nonane, 2,2,4,4,6,6,8,8-heptamethyl	7.92	0.33	1330-20-7	Xylenes (Total)		2.13
123-72-8	Butanal	7.00		123-38-6	Propanal		2.00
124-13-0	Octanal	6.65	3.01	98-86-2	Acetophenone (Ethanone, 1-phenyl)		1.79
98-86-2	Acetophenone (Ethanone, 1-phenyl)	5.11	4.31	109-66-0	Pentane		1.71
112-31-2	Decanal	4.47	2.24	124-13-0	Octanal		1.45
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	4.20	0.36	124-19-6	Nonyl aldehyde (Nonanal)		1.39
106-46-7	Benzene, 1,4-dichloro	3.54	0.18	65-85-0	Benzoic Acid		1.08
629-59-4	Tetradecane	3.53	2.21	540-97-6	Cyclohexasiloxane, dodecamethyl		1.06
29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)- (Dipropylene glycol monobutyl ether)	3.49		112-31-2	Decanal		0.83
71-23-8	1-Propanol (Propyl alcohol)	3.48		556-67-2	Cyclotetrasiloxane, octamethyl		0.82
67-64-1	Acetone	3.09	0.56	25551-13-7	Trimethylbenzene (All Isomers)		0.81
541-02-6	Cyclopentasiloxane, decamethyl	2.47	2.34	141-78-6	Acetate, ethyl		0.77
629-62-9	Pentadecane	2.43	1.13	110-54-3	Hexane		0.65
123-38-6	Propanal	2.40	2.00	100-41-4	Benzene, ethyl		0.52
100-79-8	1,3-Dioxolane-4-methanol, 2,2-dimethyl-	2.13	0.18	142-82-5	Heptane		0.51
1000131-00-3	E-11.13-Tetradecadien-1-ol	2.10		620-14-4	Benzene, 1-ethyl-3-methyl		0.41
104-76-7	1-Hexanol, 2-ethyl	2.09	0.92	589-34-4	Hexane, 3-methyl		0.38
111-71-7	Heptanal (Heptaldehyde)	1.99	0.55	3221-61-2	Octane, 2-methyl		0.37
541-05-9	Cyclotrisiloxane, hexamethyl	1.71	1.45	91-20-3	Naphthalene		0.33

Note: Total sampling time not recorded.

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

CAS	Home #	20	20	CAS	Home #	20	20
	Inside or Outside	Inside	Outside		Inside or Outside	Inside	Outside
	Trip ID	Sep-2023	Sep-2023		Trip ID	Oct-2023	Oct-2023
	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	246	287		TVOC Concentration ($\mu\text{g}/\text{m}^3$)	232	63.0
50-00-0	Formaldehyde	30.8	5.40	50-00-0	Formaldehyde	25.9	4.50
75-07-0	Acetaldehyde	26.2	13.7	75-07-0	Hexadecane, 2,6,10,14-tetramethyl-	21.4	
124-19-6	Nonyl aldehyde (Nonanal)	19.7	3.96	638-36-8	Toluene (Methylbenzene)	21.4	45.8
4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	12.3		108-88-3	Acetaldehyde	15.7	4.40
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	10.8	1.59	25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	15.7	
13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	9.40		124-19-6	Nonyl aldehyde (Nonanal)	13.4	0.67
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	8.79	0.59	629-59-4	Tetradecane	10.2	1.49
541-02-6	Cyclopentasiloxane, decamethyl	7.57	2.53	4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	8.54	
66-25-1	Hexanal	7.10		109-66-0	Pentane	8.31	
112-31-2	Decanal	7.09	2.23	79-09-4	Propanoic acid	8.28	
111-71-7	Heptanal (Heptaldehyde)	7.04	1.14	66-25-1	Hexanal	6.30	
629-59-4	Tetradecane	6.54	1.45	109-67-1	1-Pentene	6.47	
64-19-7	Acetic acid	6.05	1.07	112-31-2	Decanal	6.38	0.91
104-76-7	1-Hexanol, 2-ethyl	6.03	4.22	13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	6.04	
134-62-3	N,N-Diethyl-meta-toluamide (DEET)	4.94		138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	5.32	0.28
21129-27-1	Cyclohexanol, 1-methyl-4-(1-methylethyl)-	4.85		541-02-6	Cyclopentasiloxane, decamethyl	5.21	
88-41-5	2-tert-Butylcyclohexyl acetate	4.67	1.40	75-09-2	Methylene chloride (Dichloromethane)	5.11	
629-50-5	Tridecane	4.30	0.94	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	4.17	4.29
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	4.25	0.90	57-55-6	1,2-Propanediol (Propylene glycol)	4.09	
78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	3.68		141-78-6	Acetate, ethyl	3.82	
126434-25-1	Cyclopropanemethanol, .alpha.,.alpha.-dimethyl-2-methylene-	3.55		64-19-7	Acetic acid	3.58	
71-36-3	1-Butanol (N-Butyl alcohol)	3.54	0.89	98-01-1	Furfural (2-Furaldehyde)	3.41	
67-64-1	Acetone	3.50		111-76-2	Ethanol, 2-butoxy	3.40	
541-05-9	Cyclotrisiloxane, hexamethyl	3.49	0.69	2216-51-5	L(-)-Menthol	3.07	
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	3.46	0.58	100-52-7	Benzaldehyde	2.50	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

CAS	Home #	21	21	CAS	Home #	21	21
	Inside or Outside	Inside	Outside		Inside or Outside	Inside	Outside
	Trip ID	Sep-2023	Sep-2023		Trip ID	Oct-2023	Oct-2023
	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	300	41.8		TVOC Concentration ($\mu\text{g}/\text{m}^3$)	136	709
50-00-0	Formaldehyde	34.1		128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	18.1	9.73
75-07-0	Acetaldehyde	31.9		50-00-0	Formaldehyde	10.1	3.30
124-13-0	Octanal	17.4	2.90	66-25-1	Hexanal	8.60	5.10
541-02-6	Cyclopentasiloxane, decamethyl	17.0		629-59-4	Tetradecane	7.37	
108-05-4	Acetate, vinyl (Acetic acid ethenyl ester)	14.6		1000396-22-4	2,5-cyclohexadiene-1,4-dione, 2-(1,1-dimethylethyl)-5-(2-methyl-2-propen-1-yl)-	7.22	
124-19-6	Nonyl aldehyde (Nonanal)	14.3	3.20	75-07-0	Acetaldehyde	6.90	3.80
64-19-7	Acetic acid	12.0	0.90	124-19-6	Nonyl aldehyde (Nonanal)	6.50	
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	10.8		110-62-3	Pentanal	6.00	
629-59-4	Tetradecane	10.4		544-76-3	Hexadecane (Cetane)	5.34	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	9.58		25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	5.32	
4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	8.96		108-88-3	Toluene (Methylbenzene)	5.01	14.0
66-25-1	Hexanal	8.60	0.18	541-02-6	Cyclopentasiloxane, decamethyl	5.01	
540-97-6	Cyclohexasiloxane, dodecamethyl	8.18		590-86-3	Butanal, 3-methyl	5.00	15.5
142-62-1	Hexanoic acid	7.75		629-92-5	Nonadecane	4.38	471
108-88-3	Toluene (Methylbenzene)	7.29	15.6	124-13-0	Octanal	4.00	
629-62-9	Pentadecane	6.85		112-31-2	Decanal	3.54	1.05
110-62-3	Pentanal	6.00		123-72-8	Butanal	3.50	5.90
62185-53-9	Nonane, 5-(2-methylpropyl)	5.43		57-55-6	1,2-Propanediol (Propylene glycol)	3.25	
104-76-7	1-Hexanol, 2-ethyl	5.10	0.96	15356-70-4	Cyclohexanol, 5-methyl-2-(1-methylethyl)-, (1a,2a,5a)-(+/-) (Menthol)	3.18	
590-86-3	Butanal, 3-methyl	5.00		79-09-4	Propanoic acid	2.98	
112-31-2	Decanal	4.67	4.15	98-86-2	Acetophenone (Ethanone, 1-phenyl)	2.48	1.51
88-41-5	2-tert-Butylcyclohexyl acetate	4.56		123-38-6	Propanal	2.20	2.30
141-78-6	Acetate, ethyl	4.49	0.51	80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	2.07	0.65
2216-51-5	L(-)-Menthol	4.42		629-62-9	Pentadecane	1.95	
107-52-8	Hexasiloxane, tetradecamethyl	4.11		141-78-6	Acetate, ethyl	1.87	

Note: Outdoor samples co-located with Home #22.

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		22	22	Home #		22	22
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	192	41.8	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	984	709
75-07-0	Acetaldehyde	20.3	13.6	638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	912	
590-86-3	Butanal, 3-methyl	15.5		29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)- (Dipropylene glycol monobutyl ether)	32.7	59.4
124-19-6	Nonyl aldehyde (Nonanal)	14.2	3.20	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	11.6	20.3
50-00-0	Formaldehyde	14.0	6.40	67-63-0	2-Propanol (Isopropanol)	9.87	9.73
124-13-0	Octanal	9.63	2.90	50-00-0	Formaldehyde	9.20	3.30
108-88-3	Toluene (Methylbenzene)	9.32	15.6	54105-67-8	Heptadecane, 2,6-dimethyl	8.20	
541-02-6	Cyclopentasiloxane, decamethyl	8.58		75-07-0	Acetaldehyde	6.90	3.80
112-31-2	Decanal	7.87	4.15	629-92-5	Nonadecane	3.57	14.0
88-41-5	2-tert-Butylcyclohexyl acetate	6.49		141-78-6	Acetate, ethyl	3.51	471
123-72-8	Butanal	5.90		124-19-6	Nonyl aldehyde (Nonanal)	2.33	5.50
100-52-7	Benzaldehyde	5.50	3.50	108-61-2	1-Propanol, 2,2'-oxybis-	2.19	
66-25-1	Hexanal	5.10	0.18	108-88-3	Toluene (Methylbenzene)	1.72	
1000367-08-6	1-(1-Methoxypropan-2-yloxy)propan-2-yl acetate	4.97		124-13-0	Octanal	1.48	14.0
112-53-8	1-Dodecanol	4.79		112-31-2	Decanal	1.32	
98-86-2	Acetophenone (Ethanone, 1-phenyl)	4.75	3.21	13466-78-9	3-Carene	0.91	1.05
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	4.74		541-02-6	Cyclopentasiloxane, decamethyl	0.67	
64-19-7	Acetic acid	4.50	0.90	64-17-5	Ethanol	0.66	
32210-23-4	4-tert-Butylcyclohexyl acetate (Vertenex)	4.49		5989-27-5	D-Limonene	0.59	0.66
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	4.49		98-55-5	3-Cyclohexene-1-methanol, a,a,4-trimethyl	0.57	
1193-11-9	1,3-Dioxolane, 2,2,4-trimethyl	3.94		64-19-7	Acetic acid	0.57	
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	3.54		2473-03-2	1-Chloroundecane	0.54	
76-22-2	Camphor	3.43		18479-58-8	7-Octen-2-ol, 2,6-dimethyl	0.54	
1066-40-6	Silanol, trimethyl	3.35	3.18	88-41-5	2-tert-Butylcyclohexyl acetate	0.47	
140-11-4	Acetic acid, phenylmethyl ester (Benzyl acetate)	3.16		2445-69-4	Propanoic acid, 2-methyl, 2-methylbutyl ester	0.43	
22323-82-6	1,3-Dioxolane-4-methanol, 2,2-dimethyl-, (S)-	3.10		80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	0.41	0.65

Note: Outdoor samples co-located with Home 21.

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		23	23	Home #		23	23
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	21.3	66.1	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	1183	27.5
75-07-0	Acetaldehyde	48.3	13.2	67-63-0	2-Propanol (Isopropanol)	142	
50-00-0	Formaldehyde	34.5	6.00	13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	139	
71-23-8	1-Propanol (Propyl alcohol)	9.29		556-67-2	Cyclotetrasiloxane, octamethyl	110	1.01
100-52-7	Benzaldehyde	8.40	5.20	541-02-6	Cyclopentasiloxane, decamethyl	92.6	0.52
65-85-0	Benzoic Acid	7.74	2.02	5989-27-5	D-Limonene	91.4	
66-25-1	Hexanal	7.50		1490-04-6	Menthol	51.6	
109-66-0	Pentane	5.63	3.86	75-07-0	Acetaldehyde	42.6	6.70
590-86-3	Butanal, 3-methyl	5.40		108-88-3	Toluene (Methylbenzene)	42.0	15.2
75-09-2	Methylene chloride (Dichloromethane)	4.29	0.52	89-80-5	Cyclohexanone, 5-methyl-2-(1-methylethyl), trans	39.6	
108-88-3	Toluene (Methylbenzene)	3.30	2.02	100-79-8	1,3-Dioxolane-4-methanol, 2,2-dimethyl-	38.4	
123-72-8	Butanal	2.70		50-00-0	Formaldehyde	35.8	5.40
1066-40-6	Silanol, trimethyl	2.23	0.50	540-97-6	Cyclohexasiloxane, dodecamethyl	33.7	0.37
124-19-6	Nonyl aldehyde (Nonanal)	2.20	19.0	125-12-2	Isobornyl acetate	32.3	
124-13-0	Octanal	1.38		124-19-6	Nonyl aldehyde (Nonanal)	24.6	1.5
112-31-2	Decanal	1.24	12.7	78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	24.0	
98-86-2	Acetophenone (Ethanone, 1-phenyl)	0.96	4.51	115-95-7	Linalyl acetate (1,6-Octadien-3-ol, 3,7-dimethyl-, acetate)	22.6	
108-95-2	Phenol	0.81		64-19-7	Acetic acid	22.5	
99-87-6	Benzene, 1-methyl-4-(1-methylethyl) (p-Cymene; 4-Isopropyltoluene)	0.70		107-50-6	Cycloheptasiloxane, tetradecamethyl-	21.1	
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	0.66		470-82-6	Eucalyptol	20.7	
17312-74-2	Decane, 5-ethyl-5-methyl	0.44		18479-58-8	7-Octen-2-ol, 2,6-dimethyl	14.1	
1066-42-8	Silanediol, dimethyl-	0.42	1.00	104-76-7	1-Hexanol, 2-ethyl	13.6	
107-46-0	Disiloxane, hexamethyl	0.35		127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)	13.1	
84-69-5	1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester	0.32	1.06	20298-70-8	Cyclohexanol, 2=(1,1-dimethylethyl)-, acetate, trans-	12.9	
541-05-9	Cyclotrisiloxane, hexamethyl	0.31	2.81	112-31-2	Decanal	12.5	0.84
71-43-2	Benzene	0.28	0.34	134-62-3	N,N-Diethyl-meta-toluamide (DEET)	10.8	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		24	24	Home #		24	24
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	251	112	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	126	30.8
541-02-6	Cyclopentasiloxane, decamethyl	89.6	0.87	54105-67-8	Heptadecane, 2,6-dimethyl	30.8	
108-88-3	Toluene (Methylbenzene)	31.2	69.6	75-07-0	Ethanol, 2-(hexyloxy)	16.7	
75-07-0	Acetaldehyde	17.8	14.7	112-25-4	Pentadecane, 7-methyl-	11.3	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	13.4		6165-40-8	Toluene (Methylbenzene)	8.59	20.1
50-00-0	Formaldehyde	11.0	6.80	50-00-0	Formaldehyde	7.40	4.80
124-19-6	Nonyl aldehyde (Nonanal)	10.4	3.30	108-88-3	Acetaldehyde	6.90	4.50
124-13-0	Octanal	9.68	3.06	541-02-6	Cyclopentasiloxane, decamethyl	6.11	
1066-40-6	Silanol, trimethyl	9.55	21.7	6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	5.20	
112-31-2	Decanal	8.61	2.19	112-31-2	Decanal	4.67	0.54
71-23-8	1-Propanol (Propyl alcohol)	6.68	4.68	67-63-0	2-Propanol (Isopropanol)	4.15	
88-41-5	2-tert-Butylcyclohexyl acetate	5.92		111-76-2	Ethanol, 2-butoxy	3.56	
64-19-7	Acetic acid	4.27	0.76	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	3.55	1.00
32210-23-4	4-tert-Butylcyclohexyl acetate (Vertenex)	3.70		124-13-0	Octanal	2.96	
22323-82-6	1,3-Dioxolane-4-methanol, 2,2-dimethyl-, (S)-	2.87		109-67-1	1-Pentene	2.89	6.54
100-52-7	Benzaldehyde	2.80	3.00	67-64-1	Acetone	2.39	3.11
151-19-9	3-Octanol, 3,6-dimethyl	2.57		57-55-6	1,2-Propanediol (Propylene glycol)	2.39	
65-85-0	Benzoic Acid	2.48	2.76	32210-23-4	4-tert-Butylcyclohexyl acetate (Vertenex)	2.29	
3891-98-3	Dodecane, 2,6,10-trimethyl	2.42		540-97-6	Cyclohexasiloxane, dodecamethyl	1.95	
629-82-3	Octane, 1,1'-oxybis	2.40		629-59-4	Tetradecane	1.68	
99-87-6	Benzene, 1-methyl-4-(1-methylethyl) (p-Cymene; 4-Isopropyltoluene)	2.40	1.32	556-67-2	Cyclotetrasiloxane, octamethyl	1.63	
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	2.29		1000396-22-4	2,5-cyclohexadiene-1,4-dione, 2-(1,1-dimethylethyl)-5-(2-methyl-2-propen-1-yl)-	1.39	0.42
352-33-0	Benzene, 1-chloro-4-fluoro-	2.26		98-86-2	Acetophenone (Ethanone, 1-phenyl)	1.35	
79-09-4	Propanoic acid	2.21		88-41-5	2-tert-Butylcyclohexyl acetate	1.19	
2371-19-9	2-Heptanone, 3-methyl	2.16	0.33	127-51-5	a-Isomethyl ionone	1.01	
104-76-7	1-Hexanol, 2-ethyl	2.16	0.78	18479-58-8	7-Octen-2-ol, 2,6-dimethyl	0.98	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #	25	25	Home #	25	25		
Inside or Outside	Inside	Outside	Inside or Outside	Inside	Outside		
Trip ID	Sep-2023	Sep-2023	Trip ID	Oct-2023	Oct-2023		
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	211	19.9	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	344	49.7
541-02-6	Cyclopentasiloxane, decamethyl	59.7		541-02-6	Cyclopentasiloxane, decamethyl	152	0.63
75-07-0	Acetaldehyde	25.7	15.7	67-63-0	2-Propanol (Isopropanol)	73.7	
629-59-4	Tetradecane	24.3		75-07-0	Acetaldehyde	25.7	15.7
50-00-0	Formaldehyde	16.9	5.20	50-00-0	Formaldehyde	16.9	5.20
629-62-9	Pentadecane	13.6		629-59-4	Tetradecane	16.5	
124-13-0	Octanal	9.66	1.94	134-62-3	N,N-Diethyl-meta-toluamide (DEET)	11.0	
108-88-3	Toluene (Methylbenzene)	9.27	9.32	540-97-6	Cyclohexasiloxane, dodecamethyl	10.3	
124-19-6	Nonyl aldehyde (Nonanal)	8.52	2.78	629-62-9	Pentadecane	10.1	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	6.15		124-13-0	Octanal	9.03	1.49
109-66-0	Pentane	5.91		124-19-6	Nonyl aldehyde (Nonanal)	8.11	1.85
66-25-1	Hexanal	3.80		64-19-7	Acetic acid	7.96	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	3.68		1490-04-6	Menthol	6.71	
141-78-6	Acetate, ethyl	3.66	0.82	108-88-3	Toluene (Methylbenzene)	6.36	33.8
64-19-7	Acetic acid	3.57	0.31	470-82-6	Eucalyptol	6.14	
112-31-2	Decanal	3.48	2.82	112-31-2	Decanal	4.86	1.06
1066-40-6	Silanol, trimethyl	3.39	3.79	556-67-2	Cyclotetrasiloxane, octamethyl	4.61	1.01
21129-27-1	Cyclohexanol, 1-methyl-4-(1-methylethyl)-	3.05		5989-27-5	D-Limonene	4.40	
104-76-7	1-Hexanol, 2-ethyl	2.87		4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	4.04	
629-50-5	Tridecane	2.25		6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	3.99	
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	2.15		31295-56-4	Dodecane, 2,6,11-trimethyl	3.81	
111-71-7	Heptanal (Heptaldehyde)	2.14		66-25-1	Hexanal	3.80	
4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	2.02		74645-98-0	Dodecane, 2,7,10-trimethyl	3.24	
123-72-8	Butanal	2.00		141-78-6	Acetate, ethyl	3.21	0.73
64-17-5	Ethanol	1.97	0.43	89-80-5	Cyclohexanone, 5-methyl-2-(1-methylethyl), trans	2.84	
491-07-6	Cyclohexanone, 5-methyl-2-(1-methylethyl), cis	1.76		25117-31-1	Tridecane, 5-methyl	2.75	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		26	26	Home #		26	26
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	1546	60.2	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	2789	115
100-79-8	1,3-Dioxolane-4-methanol, 2,2-dimethyl-	160	0.49	138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	321	1.12
541-02-6	Cyclopentasiloxane, decamethyl	155	1.51	141-63-9	Pentasiloxane, dodecamethyl	251	0.50
141-63-9	Pentasiloxane, dodecamethyl	131		13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	248	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	72.9	2.96	22323-82-6	1,3-Dioxolane-4-methanol, 2,2-dimethyl-, (S)-	145	0.20
88-41-5	2-tert-Butylcyclohexyl acetate	60.2		57-55-6	1,2-Propanediol (Propylene glycol)	137	
50-00-0	Formaldehyde	56.4	8.80	67-63-0	2-Propanol (Isopropanol)	135	
5413-60-5	4,7-Methano-1H-inden-6-ol, 3a,4,5,6,7,7a-hexahydro-, acetate	56.2	0.18	127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)	122	
13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	56.0		99-85-4	1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-	90.4	
78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	54.7		78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	84.7	
75-07-0	Acetaldehyde	54.3	15.7	115-95-7	Linalyl acetate (1,6-Octadien-3-ol, 3,7-dimethyl-, acetate)	69.6	
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	48.6		5413-60-5	4,7-Methano-1H-inden-6-ol, 3a,4,5,6,7,7a-hexahydro-, acetate	69.1	
115-95-7	Linalyl acetate (1,6-Octadien-3-ol, 3,7-dimethyl-, acetate)	39.4		541-02-6	Cyclopentasiloxane, decamethyl	66.7	1.45
32210-23-4	4-tert-Butylcyclohexyl acetate (Vertenex)	38.9		50-00-0	Formaldehyde	57.2	5.00
140-11-4	Acetic acid, phenylmethyl ester (Benzyl acetate)	37.0	0.41	629-59-4	Tetradecane	54.4	
64-19-7	Acetic acid	34.5	1.49	76-22-2	Camphor	54.1	
57-55-6	1,2-Propanediol (Propylene glycol)	28.0		125-12-2	Isobornyl acetate	50.4	
106-62-7	1-Propanol, 2-(2-hydroxypropoxy)	27.6		3387-41-5	Bicyclo[3.1.0]hexane, 4-methylene-1-(1-methylethyl)	49.8	
540-97-6	Cyclohexasiloxane, dodecamethyl	26.3		75-07-0	Acetaldehyde	45.7	5
470-82-6	Eucalyptol	21.3		18479-58-8	7-Octen-2-ol, 2,6-dimethyl	39.5	0.13
124-19-6	Nonyl aldehyde (Nonanal)	21.0	5.81	1000364-61-2	1,1,3,3,5,5,7,7-Octamethyl-7-(2-methylpropoxy)tetrasiloxan-1-ol	38.9	
10411-92-4	p-tert-Butyl cyclohexyl-acetate cis	18.6		119-36-8	Benzoic acid, 2-hydroxy-, methyl ester	38.7	
1000367-08-6	1-(1-Methoxypropan-2-yloxy)propan-2-yl acetate	18.1		127-51-5	a-Isomethyl ionone	37.8	
110-98-5	2-Propanol, 1,1'-oxybis-(Dipropylene glycol)	17.0		106-62-7	1-Propanol, 2-(2-hydroxypropoxy)	37.5	
98-55-5	3-Cyclohexene-1-methanol, a,a,4-trimethyl	16.8		470-82-6	Eucalyptol	36.5	
76-22-2	Camphor	16.7		79-09-4	Propanoic acid	36.3	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		27	27	Home #		27	27
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	62.7	40.2	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	244	21.0
75-07-0	Acetaldehyde	13.2	12.8	67-63-0	2-Propanol (Isopropanol)	287	1.12
50-00-0	Formaldehyde	9.90	4.40	2216-51-5	L-(-)-Menthol	43.7	
100-52-7	Benzaldehyde	7.40		57-55-6	1,2-Propanediol (Propylene glycol)	27.5	
124-19-6	Nonyl aldehyde (Nonanal)	5.54	3.29	124-19-6	Nonyl aldehyde (Nonanal)	21.2	1.04
65-85-0	Benzoic Acid	5.16	7.96	50-00-0	Formaldehyde	17.0	4.30
112-31-2	Decanal	4.35	2.86	66-25-1	Hexanal	13.1	
124-13-0	Octanal	3.77	3.38	541-02-6	Cyclopentasiloxane, decamethyl	12.7	0.43
106-46-7	Benzene, 1,4-dichloro	3.65		128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	12.3	9.03
67-64-1	Acetone	2.60		75-07-0	Acetaldehyde	11.1	4.30
15356-70-4	Cyclohexanol, 5-methyl-2-(1-methylethyl)-, (1a,2a,5a)-(+/-) (Menthol)	2.08		108-88-3	Toluene (Methylbenzene)	11.0	7.62
64-19-7	Acetic acid	2.03	1.33	124-13-0	Octanal	10.8	
98-86-2	Acetophenone (Ethanone, 1-phenyl)	1.78	2.10	13491-79-7	Cyclohexanol, 2-(1,1-dimethylethyl)	9.76	
13491-79-7	Cyclohexanol, 2-(1,1-dimethylethyl)	1.54		111-76-2	Ethanol, 2-butoxy	9.63	
108-95-2	Phenol	1.34	1.54	98-55-5	3-Cyclohexene-1-methanol, a,a,4-trimethyl	9.02	
541-02-6	Cyclopentasiloxane, decamethyl	1.24	0.95	544-76-3	Hexadecane (Cetane)	9.00	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	1.16	1.12	112-31-2	Decanal	7.58	1.08
629-59-4	Tetradecane	1.13	0.39	106-46-7	Benzene, 1,4-dichloro	7.07	
617-94-7	Benzenemethanol, a,a-dimethyl-	1.08	1.66	629-62-9	Pentadecane	5.38	
104-76-7	1-Hexanol, 2-ethyl	1.07	1.74	138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	5.19	
110-27-0	Tetradecanoic acid, 1-methylethyl ester (Isopropyl Myristate)	0.96		6688-11-5	Cyclooctanecarboxaldehyde	4.31	
107-51-7	Trisiloxane, octamethyl	0.93		540-97-6	Cyclohexasiloxane, dodecamethyl	3.58	
29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)- (Dipropylene glycol monobutyl ether)	0.91		18479-58-8	7-Octen-2-ol, 2,6-dimethyl	2.71	
112-05-0	Nonanoic acid	0.87		107-98-2	2-Propanol, 1-methoxy-	2.49	
57-55-6	1,2-Propanediol (Propylene glycol)	0.87		142-62-1	Hexanoic acid	2.41	
142-62-1	Hexanoic acid	0.87	0.29	141-78-6	Acetate, ethyl	2.28	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #	28	28	Home #	28	28		
Inside or Outside	Inside	Outside	Inside or Outside	Inside	Outside		
Trip ID	Sep-2023	Sep-2023	Trip ID	Oct-2023	Oct-2023		
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	92.5	23.9	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	278	12.2
108-88-3	Toluene (Methylbenzene)	31.8	0.94	629-59-4	Tetradecane	50.8	
71-23-8	1-Propanol (Propyl alcohol)	22.0		108-88-3	Toluene (Methylbenzene)	49.0	6.25
75-07-0	Acetaldehyde	18.1	18.5	629-62-9	Pentadecane	35.4	
50-00-0	Formaldehyde	12.6	9.60	75-07-0	Acetaldehyde	18.1	18.5
109-66-0	Pentane	10.8	5.39	50-00-0	Formaldehyde	12.6	9.60
65-85-0	Benzoic Acid	8.95	5.63	124-19-6	Nonyl aldehyde (Nonanal)	11.6	1.47
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	6.12		124-13-0	Octanal	8.09	1.18
75-09-2	Methylene chloride (Dichloromethane)	4.95	1.07	541-02-6	Cyclopentasiloxane, decamethyl	7.16	0.84
124-19-6	Nonyl aldehyde (Nonanal)	4.84	2.22	112-31-2	Decanal	7.11	0.72
124-13-0	Octanal	3.99	1.64	544-76-3	Hexadecane (Cetane)	7.04	
112-31-2	Decanal	3.95	0.91	556-67-2	Cyclotetrasiloxane, octamethyl	5.20	1.09
1066-40-6	Silanol, trimethyl	3.31		540-97-6	Cyclohexasiloxane, dodecamethyl	4.41	
98-86-2	Acetophenone (Ethanone, 1-phenyl)	3.17	0.97	104-76-7	1-Hexanol, 2-ethyl	4.14	
141-78-6	Acetate, ethyl	2.65	1.14	65-85-0	Benzoic Acid	4.13	0.63
541-02-6	Cyclopentasiloxane, decamethyl	2.64	0.74	64-19-7	Acetic acid	4.08	3.38
64-19-7	Acetic acid	2.31		25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	3.82	
79-09-4	Propanoic acid	2.21		6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	3.60	
108-05-4	Acetate, vinyl (Acetic acid ethenyl ester)	2.03		125-12-2	Isobornyl acetate	3.14	
108-95-2	Phenol	1.53	0.65	67-66-3	Chloroform (Trichloromethane)	3.07	
99-87-6	Benzene, 1-methyl-4-(1-methylethyl) (p-Cymene; 4-Isopropyltoluene)	1.38		71-36-3	1-Butanol (N-Butyl alcohol)	2.65	
111-76-2	Ethanol, 2-butoxy	1.34		111-71-7	Heptanal (Heptaldehyde)	2.38	
71-36-3	1-Butanol (N-Butyl alcohol)	1.15		123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	2.07	
629-59-4	Tetradecane	1.14	0.33	629-78-7	Heptadecane	2.01	
78-93-3	2-Butanone (Methyl ethyl ketone, MEK)	1.08		107-50-6	Cycloheptasiloxane, tetradecamethyl-	1.94	
112-44-7	Undecanal	1.00		98-86-2	Acetophenone (Ethanone, 1-phenyl)	1.86	0.74

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #	29	29	Home #	29	29		
Inside or Outside	Inside	Outside	Inside or Outside	Inside	Outside		
Trip ID	Sep-2023	Sep-2023	Trip ID	Oct-2023	Oct-2023		
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	152	43.3	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	1456	23.2
541-02-6	Cyclopentasiloxane, decamethyl	26.5	1.59	541-02-6	Cyclopentasiloxane, decamethyl	147	0.79
75-07-0	Acetaldehyde	15.4	14.2	67-63-0	2-Propanol (Isopropanol)	116	
124-19-6	Nonyl aldehyde (Nonanal)	13.6	2.89	138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	109	0.41
50-00-0	Formaldehyde	12.2	5.20	2756-56-1	Isobornyl propionate	80.3	
108-88-3	Toluene (Methylbenzene)	10.0	8.30	470-82-6	Eucalyptol	71.7	
71-23-8	1-Propanol (Propyl alcohol)	7.71	3.09	142-92-7	Acetic acid, hexyl ester	63.9	
79-09-4	Propanoic acid	7.59		112-25-4	Ethanol, 2-(hexyloxy)	61.3	
109-66-0	Pentane	6.73	6.32	32210-23-4	4-tert-Butylcyclohexyl acetate (Vertenex)	53.3	
112-31-2	Decanal	6.22	1.00	80-26-2	3-Cyclohexene-1-methanol, a,a,4-trimethyl-, acetate	47.3	
134-62-3	N,N-Diethyl-meta-toluamide (DEET)	5.74		141-78-6	Acetate, ethyl	44.8	
124-13-0	Octanal	5.45	2.84	3892-00-0	Pentadecane, 2,6,10-trimethyl-	41.7	
123-38-6	Propanal	5.40		111-13-7	2-Octanone	40.0	
629-59-4	Tetradecane	5.26	0.23	108-88-3	Toluene (Methylbenzene)	37.4	4.40
65-85-0	Benzoic Acid	4.57	1.12	51117-20-5	Lavandulyl isobutyrate	36.8	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	4.11	1.95	75-07-0	Acetaldehyde	36.6	3.60
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	4.09	1.71	50-00-0	Formaldehyde	34.0	3.40
100000-61-1	Benzaldehyde, 3- and/or 4-methyl	3.90		18479-58-8	7-Octen-2-ol, 2,6-dimethyl	33.1	
100000-61-1	Benzaldehyde, 3-and/or 4-methyl	3.90		629-59-4	Tetradecane	32.1	
629-62-9	Pentadecane	3.49		123-38-6	Propanal	31.2	
1000195-40-9	2,4,5,5,8a-Pentamethyl-6,7,8,8a-tetrahydro-5H-chromene	2.18		76-22-2	Camphor	28.1	
96-08-2	7-Oxabicyclo[4.1.0]heptane, 1-methyl-4-(2-methyloxiranyl)-	2.10	0.46	5413-60-5	4,7-Methano-1H-inden-6-ol, 3a,4,5,6,7,7a-hexahydro-, acetate	26.7	
57-55-6	1,2-Propanediol (Propylene glycol)	2.03		79-09-4	Propanoic acid	23.4	
75-09-2	Methylene chloride (Dichloromethane)	1.88	0.77	7452-79-1	Butanoic acid, 2-methyl-, ethyl ester	22.9	
13491-79-7	Cyclohexanol, 2-(1,1-dimethylethyl)	1.67		98-52-2	Cyclohexanol, 4-(1,1-dimethylethyl)	22.4	
1066-40-6	Silanol, trimethyl	1.60	0.78	4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	21.4	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #	30	30	Home #	30	30		
Inside or Outside	*Inside	Outside	Inside or Outside	Inside	Outside		
Trip ID	Sep-2023	Sep-2023	Trip ID	Oct-2023	Oct-2023		
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	6.40	6.41	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	675	66.9
75-07-0	Acetaldehyde	48.7	41.2	541-02-6	Cyclopentasiloxane, decamethyl	238	0.49
50-00-0	Formaldehyde	45.5	13.8	75-07-0	Acetaldehyde	48.7	41.2
66-25-1	Hexanal	9.30		50-00-0	Formaldehyde	45.5	13.8
100-52-7	Benzaldehyde	4.90		629-59-4	Tetradecane	40.0	
108-88-3	Toluene (Methylbenzene)	4.03		4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	23.5	
71-23-8	1-Propanol (Propyl alcohol)	1.57		124-19-6	Nonyl aldehyde (Nonanal)	19.1	0.99
1066-40-6	Silanol, trimethyl	0.79		108-88-3	Toluene (Methylbenzene)	18.7	47.5
541-02-6	Cyclopentasiloxane, decamethyl	0.78		67-64-1	Acetone	17.7	
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	0.69		5989-27-5	D-Limonene	16.3	
1000309-19-2	Sulfurous acid, 2-ethylhexyl nonyl ester	0.35		88-41-5	2-tert-Butylcyclohexyl acetate	14.5	
64-17-5	Ethanol	0.31		79-09-4	Propanoic acid	11.4	
99-87-6	Benzene, 1-methyl-4-(1-methylethyl) (p-Cymene; 4-Isopropyltoluene)	0.30		141-62-8	Tetrasiloxane, decamethyl	11.0	
1066-42-8	Silanediol, dimethyl-	0.15		540-97-6	Cyclohexasiloxane, dodecamethyl	10.8	
541-05-9	Cyclotrisiloxane, hexamethyl	0.10		13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	10.1	
				141-63-9	Pentasiloxane, dodecamethyl	9.94	
				64-19-7	Acetic acid	9.45	
				66-25-1	Hexanal	9.30	
				119405-11-7	Tricyclo[4.2.1.1(2,5)]dec-3-en-9-ol, acetate, stereoisomer	9.08	
				1560-97-0	Dodecane, 2-methyl	8.37	
				20298-70-8	Cyclohexanol, 2-(1,1-dimethylethyl)-, acetate, trans-	8.21	
				556-67-2	Cyclotetrasiloxane, octamethyl	7.90	1.54
				78-69-3	3-Octanol, 3,7-dimethyl-	7.47	
				17312-62-8	Decane, 5-propyl	7.24	
				18479-58-8	7-Octen-2-ol, 2,6-dimethyl	6.50	
				107-51-7	Trisiloxane, octamethyl	5.87	

* Problem with the pump, flow rate might be off. Only 14 compounds detected.

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #	31	31	Home #	31	31		
Inside or Outside	Inside	Outside	Inside or Outside	Inside	Outside		
Trip ID	Sep-2023	Sep-2023	Trip ID	Oct-2023	Oct-2023		
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	50.5	27.5	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	46.1	41.2
75-07-0	Acetaldehyde	12.0	12.9	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	27.0	11.0
65-85-0	Benzoic Acid	5.53	6.89	67-63-0	2-Propanol (Isopropanol)	11.0	
50-00-0	Formaldehyde	5.40	6.20	75-07-0	Acetaldehyde	7.90	6.00
127-51-5	a-Isomethyl ionone	3.73		50-00-0	Formaldehyde	7.80	5.20
541-02-6	Cyclopentasiloxane, decamethyl	3.20	0.76	108-88-3	Toluene (Methylbenzene)	7.60	20.9
80-54-6	Lilial	2.44		100-52-7	Benzaldehyde	3.8	
124-19-6	Nonyl aldehyde (Nonanal)	2.37	1.92	541-02-6	Cyclopentasiloxane, decamethyl	1.64	0.37
112-31-2	Decanal	2.33	0.87	112-31-2	Decanal	1.42	1.75
109-66-0	Pentane	1.71		124-13-0	Octanal	1.31	1.39
220766-79-0	(4aS,8aS)-8-Isopentyl-4,4,7,8a-tetramethyl-1,2,3,4,4a,5,6,8a-octahydronaphthalene	1.59		124-19-6	Nonyl aldehyde (Nonanal)	1.31	1.36
124-13-0	Octanal	1.58	2.04	74630-39-0	1-Undecene, 4-methyl-	0.85	
1000447-36-7	6-Methyl-2-heptanol, 2-methylpropionate	1.23		141-63-9	Pentasiloxane, dodecamethyl	0.71	
7779-30-8	1-Penten-3-one, 1-(2,6,6-trimethyl-2-cyclohexen-1-yl)-	1.09		540-97-6	Cyclohexasiloxane, dodecamethyl	0.62	
1000197-08-4	1-Cyclohexene, 1,3,3-trimethyl-2-(1-methylbut-1-en-3-on-1-yl)	1.04		556-67-2	Cyclotetrasiloxane, octamethyl	0.47	0.17
120-66-1	Acetamide, N-(2-methylphenyl)-	1.02		138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	0.43	
101-86-0	a-Hexylcinnamaldehyde [Octanal, 2-(phenylmethylene)]	0.95		64-17-5	Ethanol	0.43	
1000190-21-8	2-(4a,8-Dimethyl-6-oxo-1,2,3,4,4a,5,6,8a-octahydro-naphthalen-2-yl)-propionaldehyde	0.92		2298-99-9	4H-Pyran-4-one, 3-hydroxy-2,6-dimethyl-	0.41	
21504-07-4	Methanone, 1,3-dithian-2-ylphenyl-	0.88		104-76-7	1-Hexanol, 2-ethyl	0.39	
104-76-7	1-Hexanol, 2-ethyl	0.86	0.27	78-69-3	3-Octanol, 3,7-dimethyl-	0.34	
60-12-8	Phenylethyl Alcohol	0.82		24070-70-0	3-Methylcyclopentyl acetate	0.29	
1000132-07-4	Indan-1,3-diol monoacetate	0.76		62108-22-9	Decane, 2,5,9-trimethyl	0.28	0.19
32210-23-4	4-tert-Butylcyclohexyl acetate (Vertenex)	0.75		5295-23-8	s-Triazole, 3-acetamido-	0.22	
141-78-6	Acetate, ethyl	0.72		5921-84-6	4-Heptanol, acetate	0.21	
95-16-9	Benzothiazole	0.71	0.15	18479-58-8	7-Octen-2-ol, 2,6-dimethyl	0.19	
101-84-8	Benzene, 1,1'-oxybis- (Diphenyl ether)	0.70		132739-31-2	1-(1-tert-Butoxypropan-2-yloxy)propan-2-ol	0.18	
				112-40-3	Dodecane	0.17	

Note: Outdoor samples co-located with Home 16.

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		32	32	Home #		32	32
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	991	292	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	449	27.2
5131-66-8	2-Propanol, 1-butoxy	222	2.10	67-63-0	2-Propanol (Isopropanol)	333	
108-88-3	Toluene (Methylbenzene)	178	167	541-02-6	Cyclopentasiloxane, decamethyl	155	0.70
29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)- (Dipropylene glycol monobutyl ether)	60.2	0.96	108-88-3	Toluene (Methylbenzene)	42.9	11.3
109-66-0	Pentane	38.7	26.2	76-22-2	Camphor	21.9	
124-19-6	Nonyl aldehyde (Nonanal)	32.3	7.26	50-00-0	Formaldehyde	21.4	3.30
124-13-0	Octanal	26.6	6.47	629-59-4	Tetradecane	19.8	
111-76-2	Ethanol, 2-butoxy	26.1		134-62-3	N,N-Diethyl-meta-toluamide (DEET)	19.4	
1066-40-6	Silanol, trimethyl	23.5	31.9	75-07-0	Acetaldehyde	18.9	3.70
770-35-4	1-Phenoxypropan-2-ol	23.4	0.85	629-62-9	Pentadecane	13.0	
78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	20.3		1490-04-6	Menthol	12.6	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	16.1	2.33	80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	12.0	
75-07-0	Acetaldehyde	15.4	14.2	111-76-2	Ethanol, 2-butoxy	9.94	
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	15.3	1.37	124-19-6	Nonyl aldehyde (Nonanal)	6.59	0.76
112-31-2	Decanal	14.2	4.22	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	6.54	6.84
6863-58-7	Di-sec-butyl ether	14.0		17977-72-9	1,1,3,3,5,5-Hexamethyl-1,5-diphenyl-trisiloxane	6.28	
134-62-3	N,N-Diethyl-meta-toluamide (DEET)	13.1	0.39	5989-27-5	D-Limonene	6.23	
50-00-0	Formaldehyde	12.2	5.20	122-99-6	Ethanol, 2-phenoxy	6.02	
541-02-6	Cyclopentasiloxane, decamethyl	12.1	3.90	18479-58-8	7-Octen-2-ol, 2,6-dimethyl	5.98	
123-92-2	1-Butanol, 3-methyl-, acetate	10.4		470-82-6	Eucalyptol	5.70	
88-41-5	2-tert-Butylcyclohexyl acetate	8.65	1.96	124-13-0	Octanal	4.86	
67-66-3	Chloroform (Trichloromethane)	8.02	1.58	127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)	4.59	
57-55-6	1,2-Propanediol (Propylene glycol)	7.83		100000-61-1	Benzaldehyde, 3-and/or 4-methyl	3.90	
110-19-0	Acetic acid, 2-methylpropyl ester (Isobutyl acetate)	7.39		540-97-6	Cyclohexasiloxane, dodecamethyl	3.57	
141-78-6	Acetate, ethyl	7.07	1.04	88-41-5	2-tert-Butylcyclohexyl acetate	3.56	
21129-27-1	Cyclohexanol, 1-methyl-4-(1-methylethyl)-	6.84	0.69	689-67-8	5,9-Undecadien-2-one, 6,10-dimethyl-	3.24	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		33	33	Home #		33	33
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	894	58.9	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	602	28.9
541-02-6	Cyclopentasiloxane, decamethyl	126	1.30	67-63-0	2-Propanol (Isopropanol)	297	
75-07-0	Acetaldehyde	91.7	14.1	541-02-6	Cyclopentasiloxane, decamethyl	117	2.77
112-25-4	Ethanol, 2-(hexyloxy)	82.2		5989-27-5	D-Limonene	56.1	
629-59-4	Tetradecane	78.6	0.53	1000367-08-6	1-(1-Methoxypropan-2-yloxy)propan-2-yl acetate	35.7	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	35.2		629-59-4	Tetradecane	30.9	
629-62-9	Pentadecane	33.3	0.15	1000378-33-1	1-[(1-Propoxypropan-2-yl)oxy]propan-2-yl acetate	26.4	
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	33.3	0.29	124-19-6	Nonyl aldehyde (Nonanal)	20.4	7.55
5131-66-8	2-Propanol, 1-butoxy	30.3		629-62-9	Pentadecane	16.5	
50-00-0	Formaldehyde	29.3	5.60	75-07-0	Acetaldehyde	14.2	91.7
64-17-5	Ethanol	28.2	0.24	71-36-3	1-Butanol (N-Butyl alcohol)	12.7	
78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	22.1		141-63-9	Pentasiloxane, dodecamethyl	9.48	
66-25-1	Hexanal	17.1		13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	9.02	
108-88-3	Toluene (Methylbenzene)	16.4	16.7	78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	8.96	
88-41-5	2-tert-Butylcyclohexyl acetate	15.0		127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)	8.79	
13475-82-6	Heptane, 2,2,4,6,6-pentamethyl	13.9		119-36-8	Benzoic acid, 2-hydroxy-, methyl ester	8.65	
1000367-08-6	1-(1-Methoxypropan-2-yloxy)propan-2-yl acetate	13.6		540-97-6	Cyclohexasiloxane, dodecamethyl	8.46	1.54
134-62-3	N,N-Diethyl-meta-toluamide (DEET)	13.4		544-76-3	Hexadecane (Cetane)	7.43	
109-66-0	Pentane	13.0	3.87	18479-58-8	7-Octen-2-ol, 2,6-dimethyl	7.41	
104-76-7	1-Hexanol, 2-ethyl	12.4	2.87	125-12-2	Isobornyl acetate	7.16	
29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)-(Dipropylene glycol monobutyl ether)	11.8		112-31-2	Decanal	6.82	2.06
1193-11-9	1,3-Dioxolane, 2,2,4-trimethyl	11.6		14901-07-6	3-Buten-2-one, 4-(2,6,6-trimethyl-1-cyclohexen-1-yl)	6.44	
5413-60-5	4,7-Methano-1H-inden-6-ol, 3a,4,5,6,7,7a-hexahydro-, acetate	10.6		104-76-7	1-Hexanol, 2-ethyl	6.40	
64-19-7	Acetic acid	10.2	0.41	25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	6.34	
23283-97-8	Cyclohexanol, 5-methyl-2-(1-methylethyl)-, [1S-(1a, 2a, 5a)]-	10.1		6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	6.01	
58430-94-7	3,5,5-Trimethylhexyl acetate	9.33		111-71-7	Heptanal (Heptaldehyde)	5.79	0.73

Note: Outdoor samples co-located with Home 34.

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		34	34	Home #		34	34
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	671	58.9	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	515	28.9
29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)- (Dipropylene glycol monobutyl ether)	245		541-02-6	Cyclopentasiloxane, decamethyl	80.7	2.77
67-63-0	2-Propanol (Isopropanol)	68.6		6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	59.4	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	35.2		29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)- (Dipropylene glycol monobutyl ether)	49.3	
140-11-4	Acetic acid, phenylmethyl ester (Benzyl acetate)	32.1		4390-04-9	Nonane, 2,2,4,4,6,8,8-heptamethyl	23.2	
50-00-0	Formaldehyde	27.4		124-13-0	Octanal	17.4	2.42
100-51-6	Benzyl alcohol (Benzenemethanol)	23.7		124-19-6	Nonyl aldehyde (Nonanal)	16.9	7.55
98-55-5	3-Cyclohexene-1-methanol, a,a,4-trimethyl	22.1		1490-04-6	Menthol	15.6	
75-07-0	Acetaldehyde	16.9		5989-27-5	D-Limonene	15.3	
127-51-5	a-Isomethyl ionone	12.7		75-07-0	Acetaldehyde	14.1	91.7
117888-04-7	2,4-Diethyl-6-methyl-1,3,5-trioxane	12.6		108-88-3	Toluene (Methylbenzene)	12.5	8.56
55956-25-7	2-Propanol, 1-[1-methyl-2-(2-propenyloxy)ethoxy]	11.9		112-31-2	Decanal	11.5	2.06
112-31-2	Decanal	11.7	2.14	104-76-7	1-Hexanol, 2-ethyl	10.6	
60-12-8	Phenylethyl Alcohol	10.1		140-11-4	Acetic acid, phenylmethyl ester (Benzyl acetate)	9.83	
124-19-6	Nonyl aldehyde (Nonanal)	10.0	3.50	110-93-0	5-Hepten-2-one, 6-methyl	7.99	
124-13-0	Octanal	8.94	2.60	629-62-9	Pentadecane	6.38	
78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	7.91		629-59-4	Tetradecane	6.18	
541-02-6	Cyclopentasiloxane, decamethyl	7.87	1.30	50-00-0	Formaldehyde	5.60	29.3
6259-76-3	n-Hexyl salicylate	6.72		689-67-8	5,9-Undecadien-2-one, 6,10-dimethyl-	5.52	
80-26-2	3-Cyclohexene-1-methanol, a,a,4-trimethyl-, acetate	6.39		25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	5.09	
2050-08-0	Benzoic acid, 2-hydroxy-, pentyl ester	5.93		540-97-6	Cyclohexasiloxane, dodecamethyl	5.03	1.54
629-59-4	Tetradecane	5.17	0.53	71-36-3	1-Butanol (N-Butyl alcohol)	5.00	
93-92-5	Benzenemethanol, a-methyl-, acetate	5.00		1330-20-7	Xylenes (Total)	4.56	
112-38-9	Undecylenic acid	4.74		15356-70-4	Cyclohexanol, 5-methyl-2-(1-methylethyl)-, (1a,2a,5a)-(+/-) (Menthol)	4.51	
5669-09-0	Propane, 1,1'-[ethylidenebis(oxy)]bis[2-methyl-	4.57		88-41-5	2-tert-Butylcyclohexyl acetate	4.51	
15356-70-4	Cyclohexanol, 5-methyl-2-(1-methylethyl)-, (1a,2a,5a)-(+/-) (Menthol)	4.51		127-51-5	a-Isomethyl ionone	4.50	

Note: Outdoor samples co-located with Home 33.

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		35	35	Home #		35	35
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	323	23.5	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	195	24.8
50-00-0	Formaldehyde	39.6	5.60	67-63-0	2-Propanol (Isopropanol)	98.7	
75-07-0	Acetaldehyde	36.2	14.2	79-09-4	Propanoic acid	31.9	
124-19-6	Nonyl aldehyde (Nonanal)	24.6	1.72	50-00-0	Formaldehyde	27.4	39.6
5451-76-3	Ethanol, 2-butoxy-, benzoate	24.3		57-55-6	1,2-Propanediol (Propylene glycol)	17.8	
124-13-0	Octanal	18.3	1.33	75-07-0	Acetaldehyde	16.9	36.2
4/9/4390	Nonane, 2,2,4,4,6,8,8-heptamethyl	17.8		108-88-3	Toluene (Methylbenzene)	13.9	10.7
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	17.4		1000236-41-4	2-Isobutoxyethyl benzoate	12.9	
109-66-0	Pentane	14.0	1.69	124-19-6	Nonyl aldehyde (Nonanal)	9.85	
5444-75-7	Benzoic acid, 2-ethylhexyl ester	12.8		128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	8.21	11.6
108-88-3	Toluene (Methylbenzene)	11.5	0.41	544-76-3	Hexadecane (Cetane)	7.16	
112-31-2	Decanal	11.1	1.21	629-59-4	Tetradecane	6.72	
1000149-84-5	Myrcenylacetat	8.69		124-13-0	Octanal	6.61	
541-02-6	Cyclopentasiloxane, decamethyl	7.99		5444-75-7	Benzoic acid, 2-ethylhexyl ester	6.39	
66-25-1	Hexanal	7.80		4/9/4390	Nonane, 2,2,4,4,6,8,8-heptamethyl	6.12	
76-22-2	Camphor	6.06		64-19-7	Acetic acid	6.09	
64-19-7	Acetic acid	5.59	0.78	98-01-1	Furfural (2-Furaldehyde)	5.41	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	5.39		5989-27-5	D-Limonene	5.38	
540-97-6	Cyclohexasiloxane, dodecamethyl	5.35		431-03-8	2,3-Butanedione	4.00	
104-76-7	1-Hexanol, 2-ethyl	5.25		107-52-8	Hexasiloxane, tetradecamethyl	3.99	
287-92-3	Cyclopentane	4.84		541-02-6	Cyclopentasiloxane, decamethyl	3.96	
57-55-6	1,2-Propanediol (Propylene glycol)	4.79		123-72-8	Butanal	3.90	
111-76-2	Ethanol, 2-butoxy	4.76		142-82-5	Heptane	3.75	
127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)	4.76		142-62-1	Hexanoic acid	3.55	
78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	3.96		112-31-2	Decanal	3.18	
23283-97-8	Cyclohexanol, 5-methyl-2-(1-methylethyl)-, [1S-(1a, 2a, 5a)]-	3.72		109-67-1	1-Pentene	3.15	4.67

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		36	36	Home #		36	36
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	116	44.7	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	1250	46.7
108-88-3	Toluene (Methylbenzene)	27.3	10.2	629-59-4	Tetradecane	195	
75-07-0	Acetaldehyde	24.8	12.0	541-02-6	Cyclopentasiloxane, decamethyl	185	0.81
109-66-0	Pentane	13.5		67-63-0	2-Propanol (Isopropanol)	160	
124-19-6	Nonyl aldehyde (Nonanal)	12.8	5.70	5989-27-5	D-Limonene	72.1	0.30
50-00-0	Formaldehyde	10.9	6.10	629-62-9	Pentadecane	57.5	
1066-40-6	Silanol, trimethyl	9.68	0.68	128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	51.2	26.7
112-31-2	Decanal	7.22	4.41	112-25-4	Ethanol, 2-(hexyloxy)	45.7	
124-13-0	Octanal	6.64	3.67	2756-56-1	Isobornyl propionate	34.6	
71-23-8	1-Propanol (Propyl alcohol)	4.35		142-92-7	Acetic acid, hexyl ester	31.7	
99-87-6	Benzene, 1-methyl-4-(1-methylethyl) (p-Cymene; 4-Isopropyltoluene)	4.06		50-00-0	Formaldehyde	31.5	3.70
57709-95-2	2-Oxabicyclo[2.2.2]octan-6-ol, 1,3,3-trimethyl-, acetate	3.73		470-82-6	Eucalyptol	28.1	
98-86-2	Acetophenone (Ethanone, 1-phenyl)	3.44	2.94	544-76-3	Hexadecane (Cetane)	24.7	
1000196-01-7	Cyclohexene, 3-acetoxy-4-(1-hydroxy-1-methylethyl)-1-methyl-	2.65		54833-48-6	Heptadecane, 2,6,10,15-tetramethyl-	23.2	
470-82-6	Eucalyptol	1.99		78-70-6	3,7-Dimethyl-1,6-octadien-3-ol (Linalool)	21.6	
507-70-0	Borneol (endo-Borneol)	1.85		75-07-0	Acetaldehyde	20.6	3.70
541-02-6	Cyclopentasiloxane, decamethyl	1.84	0.75	7452-79-1	Butanoic acid, 2-methyl-, ethyl ester	19.8	
629-59-4	Tetradecane	1.81	0.75	18479-58-8	7-Octen-2-ol, 2,6-dimethyl	16.3	
96-08-2	7-Oxabicyclo[4.1.0]heptane, 1-methyl-4-(2-methyloxiranyl)-	1.58		15356-70-4	Cyclohexanol, 5-methyl-2-(1-methylethyl)-, (1a,2a,5a)-(+/-) (Menthol)	15.9	
138-87-4	Cyclohexanol, 1-methyl-4-(1-methylethenyl)-	1.49		108-88-3	Toluene (Methylbenzene)	14.0	2.74
79-92-5	Camphene	1.48		111-13-7	2-Octanone	13.2	
111-71-7	Heptanal (Heptaldehyde)	1.40	0.60	112-31-2	Decanal	12.7	1.07
80-56-8	Pinene, alpha (2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene)	1.40	0.18	141-78-6	Acetate, ethyl	11.2	
629-62-9	Pentadecane	1.39	0.32	57-55-6	1,2-Propanediol (Propylene glycol)	10.9	
64-19-7	Acetic acid	1.37	0.97	141-63-9	Pentasiloxane, dodecamethyl	10.6	
98-55-5	3-Cyclohexene-1-methanol, a,a,4-trimethyl	1.35		629-50-5	Tridecane	10.4	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #	37	37	Home #	37	37		
Inside or Outside	Inside	Outside	Inside or Outside	Inside	Outside		
Trip ID	Sep-2023	Sep-2023	Trip ID	Oct-2023	Oct-2023		
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	194	70.2	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	349	156
541-02-6	Cyclopentasiloxane, decamethyl	47.8	4.40	541-02-6	Cyclopentasiloxane, decamethyl	109.1	19.7
556-67-2	Cyclotetrasiloxane, octamethyl	25.9	3.70	556-67-2	Cyclotetrasiloxane, octamethyl	46.5	6.78
108-88-3	Toluene (Methylbenzene)	22.0	18.1	108-88-3	Toluene (Methylbenzene)	25.6	36.2
71-23-8	1-Propanol (Propyl alcohol)	14.1	11.5	124-13-0	Octanal	14.3	
75-07-0	Acetaldehyde	12.4	12.7	124-19-6	Nonyl aldehyde (Nonanal)	14.0	5.65
124-19-6	Nonyl aldehyde (Nonanal)	10.2	4.51	75-07-0	Acetaldehyde	12.0	10.3
1000465-65-6	2-Ethylhexyl methyl isophthalate	9.53	0.46	112-31-2	Decanal	9.88	6.54
109-66-0	Pentane	7.84	5.97	67-63-0	2-Propanol (Isopropanol)	8.95	
112-31-2	Decanal	7.45	5.32	5989-27-5	D-Limonene	8.81	1.78
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	6.61	3.44	1330-20-7	Xylenes (Total)	8.10	8.33
50-00-0	Formaldehyde	5.50	4.50	100-79-8	1,3-Dioxolane-4-methanol, 2,2-dimethyl-	6.54	0.66
65-85-0	Benzoic Acid	5.36	5.82	78-69-3	3-Octanol, 3,7-dimethyl-	6.23	
124-13-0	Octanal	4.68	3.17	50-00-0	Formaldehyde	6.10	7.10
100000-61-1	Benzaldehyde, 3- and/or 4-methyl	4.50		25551-13-7	Trimethylbenzene (All Isomers)	5.55	3.84
100000-61-1	Benzaldehyde, 3-and/or 4-methyl	4.50		18479-58-8	7-Octen-2-ol, 2,6-dimethyl	5.42	
57-55-6	1,2-Propanediol (Propylene glycol)	3.66		111-76-2	Ethanol, 2-butoxy	4.64	1.44
540-97-6	Cyclohexasiloxane, dodecamethyl	2.51	0.44	540-97-6	Cyclohexasiloxane, dodecamethyl	4.55	1.23
99-87-6	Benzene, 1-methyl-4-(1-methylethyl) (p-Cymene; 4-Isopropyltoluene)	2.16	1.28	100000-61-1	Benzaldehyde, 3-and/or 4-methyl	4.50	
629-59-4	Tetradecane	2.09	1.18	125-12-2	Isobornyl acetate	4.11	1.36
1066-40-6	Silanol, trimethyl	1.83	1.39	65-85-0	Benzoic Acid	3.94	3.48
22323-82-6	1,3-Dioxolane-4-methanol, 2,2-dimethyl-, (S)-	1.47	0.39	119405-11-7	Tricyclo[4.2.1.1(2,5)]dec-3-en-9-ol, acetate, stereoisomer	3.75	
13491-79-7	Cyclohexanol, 2-(1,1-dimethylethyl)	1.46	0.51	100-52-7	Benzaldehyde	3.30	
104-76-7	1-Hexanol, 2-ethyl	1.44	0.80	57-55-6	1,2-Propanediol (Propylene glycol)	3.04	
18479-58-8	7-Octen-2-ol, 2,6-dimethyl	1.37	0.34	60-12-8	Phenylethyl Alcohol	3.02	
286-99-7	13-Oxabicyclo[10.1.0]tridecane	1.27		29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)- (Dipropylene glycol monobutyl ether)	2.88	

Table A1: Concentrations ($\mu\text{g}/\text{m}^3$) of detected chemicals in indoor and outdoor environments at each home.

Home #		38	38	Home #		38	38
Inside or Outside		Inside	Outside	Inside or Outside		Inside	Outside
Trip ID		Sep-2023	Sep-2023	Trip ID		Oct-2023	Oct-2023
CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	145	11.2	CAS	TVOC Concentration ($\mu\text{g}/\text{m}^3$)	236	60.3
108-88-3	Toluene (Methylbenzene)	30.0	19.5	108-88-3	Toluene (Methylbenzene)	75.2	47.1
50-00-0	Formaldehyde	26.9		75-07-0	Acetaldehyde	12.7	22.9
109-66-0	Pentane	26.1	11.9	124-19-6	Nonyl aldehyde (Nonanal)	12.5	1.37
75-07-0	Acetaldehyde	22.9		112-31-2	Decanal	10.0	0.85
127-18-4	Ethene, 1,1,2,2-tetrachloro (Tetrachloroethylene)	18.3		124-13-0	Octanal	9.50	1.08
124-19-6	Nonyl aldehyde (Nonanal)	7.65	4.52	64-19-7	Acetic acid	8.29	
104-76-7	1-Hexanol, 2-ethyl	7.12	6.27	104-76-7	1-Hexanol, 2-ethyl	6.70	
1066-40-6	Silanol, trimethyl	6.67		127-18-4	Ethene, 1,1,2,2-tetrachloro (Tetrachloroethylene)	5.84	
71-23-8	1-Propanol (Propyl alcohol)	6.17	1.41	6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	5.80	
124-13-0	Octanal	6.11	4.37	67-66-3	Chloroform (Trichloromethane)	5.39	4.57
112-31-2	Decanal	4.47	1.35	629-50-5	Tridecane	4.64	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)	4.02		50-00-0	Formaldehyde	4.50	26.9
66-25-1	Hexanal	3.70	0.76	78-93-3	2-Butanone (Methyl ethyl ketone, MEK)	3.79	
75-09-2	Methylene chloride (Dichloromethane)	3.64		106-62-7	1-Propanol, 2-(2-hydroxypropoxy)	3.78	
141-78-6	Acetate, ethyl	3.26	2.46	57-55-6	1,2-Propanediol (Propylene glycol)	3.77	
543-49-7	2-Heptanol	3.10		5989-27-5	D-Limonene	3.64	
100-42-5	Styrene	2.91	3.32	112-44-7	Undecanal	3.34	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	2.78		556-67-2	Cyclotetrasiloxane, octamethyl	3.12	1.39
142-82-5	Heptane	2.59	1.03	65-85-0	Benzoic Acid	3.11	2.73
78-93-3	2-Butanone (Methyl ethyl ketone, MEK)	2.49	0.84	541-02-6	Cyclopentasiloxane, decamethyl	3.09	
98-86-2	Acetophenone (Ethanone, 1-phenyl)	2.18	4.96	55956-25-7	2-Propanol, 1-[1-methyl-2-(2-propenyloxy)ethoxy]	2.76	
541-02-6	Cyclopentasiloxane, decamethyl	2.12	3.60	100-42-5	Styrene	2.61	0.43
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	2.09	0.93	689-67-8	5,9-Undecadien-2-one, 6,10-dimethyl-	2.61	
64-17-5	Ethanol	2.09		111-71-7	Heptanal (Heptaldehyde)	2.58	
110-93-0	5-Hepten-2-one, 6-methyl	2.05	0.46	629-59-4	Tetradecane	2.53	

Note: Outdoor samples co-located with Home 9.

Appendix B.

Table B1: Chemicals of Concern (COCs) with reference levels.

CAS	Chemical	IARC	Prop65	CA01350 ($\mu\text{g}/\text{m}^3$)	CA OEHHA REL ($\mu\text{g}/\text{m}^3$)	AgBB LCI ($\mu\text{g}/\text{m}^3$)	ASHRAE ($\mu\text{g}/\text{m}^3$)
132739-31-2	1-(1-tert-Butoxypropan-2-yloxy)propan-2-ol					250	300
57-55-6	1,2-Propanediol (Propylene glycol)					2100	
78-79-5	1,3-Butadiene, 2-methyl	2B	Cancer				
123-35-3	1,6-Octadiene,7-methyl-3-methylene (Myrcene)	2B	Cancer				140
71-36-3	1-Butanol (N-Butyl alcohol)					3000	33
137-32-6	1-Butanol, 2-methyl					730	13
123-51-3	1-Butanol, 3-methyl					730	
111-27-3	1-Hexanol (N-Hexyl alcohol)					2100	
104-76-7	1-Hexanol, 2-ethyl					300	700
108-65-6	1-Methoxy-2-propyl acetate					650	
111-87-5	1-Octanol					1700	
71-41-0	1-Pentanol (N-Pentyl alcohol)					730	7.2
75-84-3	1-Propanol, 2,2-dimethyl (Neopentyl alcohol)					730	
78-83-1	1-Propanol, 2-methyl (Isobutyl alcohol)					11000	
96-48-0	2(3H)-Furanone, dihydro (Butyrolactone)	3				2800	
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate					850	
107-41-5	2,4-Pentanediol, 2-methyl (Hexylene glycol)					3500	
128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT)	3				100	
78-93-3	2-Butanone (Methyl ethyl ketone, MEK)				A=13000	20000	
78-59-1	2-Cyclohexen-1-one, 3,5,5-trimethyl- (Isophorone)	2B		1000	C=2000		
3913-81-3	2-Decenal					22	
2497-25-8	2-Decenal, (Z)-					22	
18829-55-5	2-Heptenal, (E)					16	
591-78-6	2-Hexanone		Developmental; Male				60
18829-56-6	2-Nonenal, (E)					20	
2548-87-0	2-Octenal, (E)					18	

Table B1: Chemicals of Concern (COCs) with reference levels.

CAS	Chemical	IARC	Prop65	CA01350 (µg/m³)	CA OEHHA REL (µg/m³)	AgBB LCI (µg/m³)	ASHRAE (µg/m³)
6032-29-7	2-Pentanol					730	
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-					960	
108-10-1	2-Pentanone, 4-methyl (Methyl isobutyl ketone, MIBK)	2B	Cancer; Developmental			1000	
67-63-0	2-Propanol (Isopropanol)	3		3500	A=3200; C=7000		
29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)- (Dipropylene glycol monobutyl ether)					250	2000
110-98-5	2-Propanol, 1,1'-oxybis- (Dipropylene glycol)					670	
20324-33-8	2-Propanol, 1-[2-(2-methoxy-1-methylethoxy)-1-methylethoxy]-					1200	
5131-66-8	2-Propanol, 1-butoxy					650	
107-98-2	2-Propanol, 1-methoxy-			3500	C=7000	7900	300
75-65-0	2-Propanol, 2-methyl					620	
116-09-6	2-Propanone, 1-hydroxy					2100	
103-11-7	2-Propenoic acid, 2-ethylhexyl ester (2-Ethylhexyl acrylate)	2B	Cancer			380	
2463-77-6	2-Undecenal					24	
4994-16-5	4-Phenylcyclohexene					300	900
75-07-0	Acetaldehyde	2B	Cancer	70	A=470; 8h=300; C=140	300	
123-86-4	Acetate, butyl					4800	7000
108-05-4	Acetate, vinyl (Acetic acid ethenyl ester)	2B		100	C=200		
64-19-7	Acetic acid					1200	
108-21-4	Acetic acid, 1-methylethyl ester (Isopropyl acetate)					4200	
103-09-3	Acetic acid, 2-ethylhexyl ester					350	
110-19-0	Acetic acid, 2-methylpropyl ester (Isobutyl acetate)					4800	
140-11-4	Acetic acid, phenylmethyl ester (Benzyl acetate)	3					
109-60-4	Acetic acid, propyl ester (Propyl acetate)					4200	
67-64-1	Acetone					120000	
98-86-2	Acetophenone (Ethanone, 1-phenyl)					490	
98-83-9	a-Methylstyrene (iso-Propenylbenzene; (1-Methylethenyl) benzene)	2B	Cancer			1200	

Table B1: Chemicals of Concern (COCs) with reference levels.

CAS	Chemical	IARC	Prop65	CA01350 ($\mu\text{g}/\text{m}^3$)	CA OEHHA REL ($\mu\text{g}/\text{m}^3$)	AgBB LCI ($\mu\text{g}/\text{m}^3$)	ASHRAE ($\mu\text{g}/\text{m}^3$)
100-52-7	Benzaldehyde					90	
71-43-2	Benzene	1	Cancer; Developmental, Male	1.5	A=27; 8h=3; C=3		200
541-73-1	Benzene, 1,3-dichloro	3					
106-46-7	Benzene, 1,4-dichloro	2B	Cancer	400	C=800		
98-56-6	Benzene, 1-chloro-4-(trifluoromethyl)-	2B	Cancer				
611-14-3	Benzene, 1-ethyl-2-methyl (2-Ethyltoluene)					550	
99-87-6	Benzene, 1-methyl-4-(1-methylethyl) (p-Cymene; 4-Isopropyltoluene)					1000	
98-82-8	Benzene, 1-methylethyl (Cumene)	2B	Cancer			1700	
100-41-4	Benzene, ethyl	2B	Cancer	1000	C=2000	850	
119-61-9	Benzophenone (Diphenyl methanone)	2B	Cancer				400
100-51-6	Benzyl alcohol (Benzenemethanol)					440	
123-72-8	Butanal					650	
107-92-6	Butanoic acid					1800	7000
2835-39-4	Butanoic acid, 3-methyl-, 2-propenyl ester	3					25
56-23-5	Carbon tetrachloride	2B	Cancer	20	A=1900; C=40		
67-66-3	Chloroform (Trichloromethane)	2B	Cancer; Developmental	150	A=150; C=300		
107-50-6	Cycloheptasiloxane, tetradecamethyl-					1200	
110-82-7	Cyclohexane					6000	
108-87-2	Cyclohexane, methyl					8100	
108-94-1	Cyclohexanone	3				410	
540-97-6	Cyclohexasiloxane, dodecamethyl					1200	
120-92-3	Cyclopentanone					900	
541-02-6	Cyclopentasiloxane, decamethyl					1500	35
556-67-2	Cyclotetrasiloxane, octamethyl					1200	
112-31-2	Decanal					900	
105-76-0	Dibutyl maleate					50	
84-74-2	Dibutyl phthalate		Developmental, Female, Male				
25265-71-8	Dipropylene Glycol					670	
5989-27-5	D-Limonene	3					9
140-67-0	Estragole (4-Allylanisole)		Cancer				

Table B1: Chemicals of Concern (COCs) with reference levels.

CAS	Chemical	IARC	Prop65	CA01350 (µg/m³)	CA OEHHA REL (µg/m³)	AgBB LCI (µg/m³)	ASHRAE (µg/m³)
111-96-6	Ethane, 1,1'-oxybis[2-methoxy- (Diglyme)					28	800
107-06-2	Ethane, 1,2-dichloro	2B	Cancer		C=400		
64-17-5	Ethanol	1					
112-34-5	Ethanol, 2-(2-butoxyethoxy)					350	
112-25-4	Ethanol, 2-(hexyloxy)					900	
111-76-2	Ethanol, 2-butoxy	3			A=4700; 8h=164; C=82	1600	
122-99-6	Ethanol, 2-phenoxy					60	40
127-18-4	Ethene, 1,1,2,2-tetrachloro (Tetrachloroethylene)	2A	Cancer	17.5	A=20222; C=35		
97-53-0	Eugenol (Phenol, 2-methoxy-4-(2- propenyl)-)	3					
50-00-0	Formaldehyde	1	Cancer	9	A=55; 8h=9; C=9	100	
68-12-2	Formamide, N,N-dimethyl	2A	Cancer	40	C=80	15	
109-99-9	Furan, tetrahydro (THF)	2B	Cancer			500	
98-01-1	Furfural (2-Furaldehyde)	3				10	
111-71-7	Heptanal (Heptaldehyde)					900	
142-82-5	Heptane					15000	
111-14-8	Heptanoic acid					2100	
66-25-1	Hexanal					900	
123-05-7	Hexanal, 2-ethyl					900	
110-54-3	Hexane		Male	3500	C=7000	4300	
142-62-1	Hexanoic acid					2100	
149-57-5	Hexanoic acid, 2-ethyl					150	
138-86-3	Limonene (Dipentene; 1-Methyl-4-(1- methylethyl)cyclohexene)					5000	
80-62-6	Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)	3				750	
75-09-2	Methylene chloride (Dichloromethane)	2A	Cancer	200	A=14000; C=400		
91-20-3	Naphthalene	2B	Cancer	4.5	C=9	10	
124-19-6	Nonyl aldehyde (Nonanal)					900	
124-13-0	Octanal					900	
124-07-2	Octanoic Acid					2100	
110-62-3	Pentanal					800	
109-52-4	Pentanoic acid (Valeric acid)					2100	2.5

Table B1: Chemicals of Concern (COCs) with reference levels.

CAS	Chemical	IARC	Prop65	CA01350 ($\mu\text{g}/\text{m}^3$)	CA OEHHA REL ($\mu\text{g}/\text{m}^3$)	AgBB LCI ($\mu\text{g}/\text{m}^3$)	ASHRAE ($\mu\text{g}/\text{m}^3$)
108-95-2	Phenol	3		100	A=5800; C=200	70	
85-44-9	Phthalic anhydride (1,3-Isobenzofurandione)				C=20		
80-56-8	Pinene, alpha (2,6,6-Trimethyl- bicyclo[3.1.1]hept-2-ene)					2500	
127-91-3	Pinene, beta (6,6-Dimethyl-2- methylene-bicyclo[3.1.1]heptane)					1400	
123-38-6	Propanal					650	
79-09-4	Propanoic acid					1500	
79-31-2	Propanoic acid, 2-methyl					1800	
110-86-1	Pyridine	2B	Cancer				
100-42-5	Styrene	2A	Cancer	450	A=21000; C=900	250	
108-88-3	Toluene (Methylbenzene)	3	Developmental	150	A=5000; 8h=830; C=420	2900	
112-49-2	Triethylene glycol dimethyl ether (Triglyme)					150	
25551-13-7	Trimethylbenzene (All Isomers)				A=2400; 8h=8; C=4		
25498-49-1	Tripropylene glycol methyl ether					1200	
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)					1300	
1330-20-7	Xylenes (Total)	3			A=22000; C=700	500	

Note:

IARC: WHO International Agency for Research on Cancer. 1: carcinogenic to humans; 2A: probably carcinogenic to humans; 2B: possibly carcinogenic to humans; 3: not classifiable as to its carcinogenicity to humans.

Prop65: California (CA) Office of Environmental Health Hazard Assessment (OEHHA) Proposition 65.

CA01350: CA Specification 01350 maximum allowable concentration.

CA OEHHA REL: CA OEHHA acute (A), 8-hour (8h) and chronic (C) reference exposure levels.

AgBB LCI: Ausschuss zur gesundheitlichen Bewertung von Bauprodukten (AgBB) Lowest Concentration of Interest.

ASHRAE: American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 189.1 maximum concentration of air pollutants relevant to indoor air quality.

