FIELD SAMPLING TEST REPORT	
Customer Information	UL VERIFICATION SERVICES, INC. LST.FAI.HBDCResults@ul.com 3251 Old Lee Highway, Suite 100 Fairfax VA 22030 USA
HB Project Number	201006NY_B15
Date Received	November 17, 2020
Testing Laboratory Location	UL Environment - Marietta, 2211 Newmarket Parkway, Marietta, GA 30067-9399 USA
Method	USEPA Compendium Method TO-17 ; ASTM 6196
Authorized by	 Allyson M. McFry Chemistry Laboratory Director

Sampling: Reported data were obtained from samples and sampling information as provided by the on-site investigator. These data and general information are provided to assist the investigator in an overall IAQ assessment. Interpretation of data is left to the client or persons who conducted the field work.

This test is accredited and meets the requirements of ISO/IEC 17025 as verified by ANSI National Accreditation Board. Refer to certificate and scope of accreditation AT-1297.

Date Issued: November 23, 2020
Product #: 1001086264-3469327
Report #: 1001086264-3469327

UL ID:	SV1TFDF
Sample Date:	November 15, 2020
Volume (L):	18.0

CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

Sample Location/Description	B15_BR_04_Field Blank
Total Volatile Organic Compounds	BQL

CAS Number	Compound	Concentration	
		µg/m³	ppb
---	none	---	---

Date Issued: November 23, 2020
Product #: 1001086264-3469327
Report #: 1001086264-3469327

UL ID:	SV1TFD
Sample Date:	November 15, 2020
Volume (L):	18.4

CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

Sample Location/Description	B15_BR_04_Pre
Total Volatile Organic Compounds	582 µg/m³

CAS Number	Compound	Concentration	
		µg/m³	ppb
77-68-9	Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester (component of Texanol)	125	14.2
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	108	12.2
541-02-6	Cyclopentasiloxane, decamethyl	87.3	5.8
64-19-7	Acetic acid	29.4	12.0
66-25-1	Hexanal	24.2	5.9
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	21.1	3.8
142-96-1	n-Butyl ether	20.8	3.9
108-88-3	Toluene (Methylbenzene)	17.5	4.6
112-41-4	1-Dodecene	15.0	2.2
540-42-1	Propanoic acid, 2-methylpropyl ester*	11.2	2.1
127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)	10.3	1.9
91-20-3	Naphthalene	9.2	1.8
5989-27-5	D-Limonene*	8.4	1.5
110-62-3	Pentanal	7.7	2.2
71-36-3	1-Butanol (N-Butyl alcohol)	7.7	2.5
71-41-0	1-Pentanol (N-Pentyl alcohol)	6.4	1.8
98-01-1	Furfural (2-Furaldehyde)	6.3	1.6
144-19-4	1,3-Pentanediol, 2,2,4-trimethyl	5.6	0.9
104-76-7	1-Hexanol, 2-ethyl	5.6	1.1
108-95-2	Phenol	5.4	1.4
124-19-6	Nonyl aldehyde (Nonanal)	5.2	0.9
98-56-6	Benzene, 1-chloro-4-(trifluoromethyl)-*	5.1	0.7
111-87-5	1-Octanol	4.8	0.9
110-43-0	2-Heptanone	4.0	0.8
124-13-0	Octanal	3.9	0.7
123-86-4	Acetate, butyl	3.7	0.8
100-42-5	Styrene	3.7	0.9
141-62-8	Tetrasiloxane, decamethyl	3.7	0.3
57-55-6	1,2-Propanediol (Propylene glycol)	3.6	1.1
112445-69-9	Hexanoic acid, 2-ethyl-, nonyl ester*	3.5	0.3
100-52-7	Benzaldehyde	3.5	0.8
116-09-6	2-Propanone, 1-hydroxy	3.4	1.1
79-31-2	Propanoic acid, 2-methyl*	3.2	0.9
141-63-9	Pentasiloxane, dodecamethyl	3.2	0.2
1330-20-7	Xylenes (Total)	3.0	0.7
112-40-3	Dodecane	3.0	0.4

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CAS Number	Compound	Concentration	
		µg/m³	ppb
71-43-2	Benzene	3.0	0.9
1653-40-3	1-Heptanol, 6-methyl	3.0	0.6
540-97-6	Cyclohexasiloxane, dodecamethyl	2.9	0.2
98-86-2	Acetophenone (Ethanone, 1-phenyl)*	2.8	0.6
67-64-1	Acetone	2.8	1.2
140-67-0	Estragole (4-Allylanisole)	2.6	0.4
109-67-1	1-Pentene	2.1	0.7
112-53-8	1-Dodecanol*	2.1	0.3
503-93-5	2,4-Cycloheptadien-1-one, 2,6,6-trimethyl-*	2.1	0.3

UL ID:	SV2TFD
Sample Date:	November 15, 2020
Volume (L):	20.3

CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

Sample Location/Description	B15_BR_04_Post
Total Volatile Organic Compounds	102 µg/m³

CAS Number	**Compound**	**Concentration**	
		µg/m³	**ppb**
100-42-5	Styrene	24.7	5.8
71-43-2	Benzene	17.1	5.4
80-62-6	Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)	11.1	2.7
100-52-7	Benzaldehyde	7.3	1.7
91-20-3	Naphthalene	7.2	1.4
64-19-7	Acetic acid	6.1	2.5
108-88-3	Toluene (Methylbenzene)	6.0	1.6
19549-87-2	1-Heptene, 2,4-dimethyl*	4.0	0.8
98-01-1	Furfural (2-Furaldehyde)	3.7	1.0
116-09-6	2-Propanone, 1-hydroxy	3.4	1.1
42781-12-4	2-Propanone, 1-(1-methylethoxy)-*	3.3	0.7
98-86-2	Acetophenone (Ethanone, 1-phenyl)*	3.0	0.6
100-47-0	Benzonitrile	2.4	0.6
141-32-2	Butyl acrylate (2-Propenoic Acid, butyl ester)	2.2	0.4
1330-20-7	Xylenes (Total)	2.2	0.5
100-41-4	Benzene, ethyl	2.1	0.5
98-83-9	a-Methylstyrene (iso-Propenylbenzene; (1-Methylethenyl)benzene)	2.0	0.4

UL ID:	SV3TFD
Sample Date:	November 15, 2020
Volume (L):	23.1

CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

Sample Location/Description	B15_BR_HZA
Total Volatile Organic Compounds	1,460 µg/m³

CAS Number	Compound	Concentration	
		µg/m³	ppb
64-19-7	Acetic acid	123	50.3
100-42-5	Styrene	114	26.7
71-43-2	Benzene	93.8	29.3
91-20-3	Naphthalene	65.4	12.5
108-88-3	Toluene (Methylbenzene)	44.4	11.8
100-41-4	Benzene, ethyl	39.1	9.0
1330-20-7	Xylenes (Total)	35.9	8.3
80-62-6	Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)	31.5	7.7
767-60-2	1H-Indene, 3-methyl*	28.2	5.3
95-13-6	Indene*	26.2	5.5
80-71-7	2-Cyclopenten-1-one, 2-hydroxy-3-methyl-*	25.7	5.6
2516-33-8	Cyclopropyl carbinol*	24.2	8.2
120-92-3	Cyclopentanone	23.5	6.8
116-09-6	2-Propanone, 1-hydroxy	23.3	7.7
60-35-5	Acetamide	20.7	8.6
98-83-9	a-Methylstyrene (iso-Propenylbenzene; (1-Methylethenyl)benzene)	20.2	4.2
100-47-0	Benzonitrile	20.1	4.8
65-85-0	Benzoic Acid*	20.0	4.0
98-86-2	Acetophenone (Ethanone, 1-phenyl)*	18.2	3.7
98-01-1	Furfural (2-Furaldehyde)	18.0	4.6
91-10-1	Phenol, 2,6-dimethoxy*	17.9	2.8
498-07-7	1,6-Anhydro-.beta.-D-glucopyranose (levoglucosan)*	17.3	2.6
100-52-7	Benzaldehyde	17.2	4.0
208-96-8	Acenaphthylene*	16.6	2.7
150-76-5	Mequinol*	16.5	3.3
42781-12-4	2-Propanone, 1-(1-methylethoxy)-*	16.0	3.4
5912-86-7	Phenol, 2-methoxy-4-(1-propenyl)-, (Z)-*	14.6	2.2
19549-87-2	1-Heptene, 2,4-dimethyl*	14.6	2.8
90-12-0	Naphthalene, 1-methyl	14.6	2.5
108-95-2	Phenol	14.2	3.7
92-52-4	1,1'-Biphenyl*	14.2	2.2
600-14-6	2,3-Pentanedione*	13.6	3.3
106-44-5	Phenol, 4-methyl (p-Cresol)*	13.6	3.1
7786-61-0	2-Methoxy-4-vinylphenol*	13.5	2.2
21835-01-8	2-Cyclopenten-1-one, 3-ethyl-2-hydroxy-*	13.1	2.5

UL ID:	SV3TFD
Sample Date:	November 15, 2020
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CAS Number	Compound	Concentration	
		µg/m³	ppb
271-89-6	Benzofuran*	11.7	2.4
93-51-6	Phenol, 2-methoxy-4-methyl*	11.5	2.0
627-08-7	Propane, 1-(1-methylethoxy)*	10.5	2.5
141-32-2	Butyl acrylate (2-Propenoic Acid, butyl ester)	10.3	2.0
96-54-8	1H-Pyrrole, 1-methyl-*	9.7	2.9
1120-06-5	2-Decanol*	9.7	1.5
111-76-2	Ethanol, 2-butoxy	8.6	1.8
626-93-7	2-Hexanol*	8.6	2.0
95-48-7	Phenol, 2-methyl*	8.3	1.9
1000194-91-8	3-Isopropyl-4-methyl-dec-1-en-4-ol*	8.3	1.0
91-57-6	Naphthalene, 2-methyl	8.2	1.4
1120-73-6	2-Cyclopenten-1-one, 2-methyl*	7.8	2.0
1000191-08-0	1-Hydroxy-4,4-dimethylcyclohexanecarbonitrile*	7.8	1.2
1000190-86-7	4-Hydroxy-6,6-dimethyl-cyclohex-2-enone*	7.7	1.3
85-01-8	Phenanthrene*	7.7	1.1
56500-48-2	3-Methyl-2-butenoic acid, 3-phenylpropyl ester*	7.6	0.9
611-15-4	Benzene, 1-ethenyl-2-methyl-*	7.5	1.6
620-02-0	2-Furancarboxaldehyde, 5-methyl*	7.4	1.6
540-97-6	Cyclohexasiloxane, dodecamethyl	7.4	0.4
105-67-9	Phenol, 2,4-dimethyl	7.4	1.5
1000431-44-5	Hexanal benzyl trans-2-hexenyl acetal*	7.3	0.6
96-08-2	7-Oxabicyclo[4.1.0]heptane, 1-methyl-4-(2-methyloxiranyl)-*	7.1	1.0
7473-98-5	2-Hydroxy-iso-butyrophenone*	7.1	1.1
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	6.9	0.8
135-77-3	1.2.4-Trimethoxybenzene*	6.9	1.0
542-59-6	Ethylene glycol monoacetate	6.6	1.6
4359-46-0	1,3-Dioxolane, 2-ethyl-4-methyl*	6.6	1.4
1942-45-6	4-Octyne*	6.5	1.4
1192-62-7	Ethanone, 1-(2-furanyl)*	6.3	1.4
109-75-1	3-Butenenitrile*	6.3	2.3
2785-89-9	Phenol, 4-ethyl-2-methoxy*	6.2	1.0
300-57-2	Allylbenzene	6.2	1.3
584-03-2	1,2-Butanediol*	6.1	1.7
571-58-4	Naphthalene, 1,4-dimethyl	6.0	0.9
91337-07-4	2-Isopropyl-5-methyl-1-heptanol*	5.9	0.8
5077-67-8	1-Hydroxy-2-butanone*	5.9	1.6
86-73-7	2,2-Metaylenebiphenyl (Fluorene)*	5.8	0.9
10347-14-5	Benzene-1,2,4-tricarbonitrile*	5.8	0.9
24175-87-9	1-Phenyl-2-acetoxy-prop-1-en*	5.8	0.8
827-54-3	Naphthalene, 2-vinyl	5.8	0.9
83-33-0	1H-Inden-1-one, 2,3-dihydro-*	5.8	1.1
50390-78-8	1-Methoxy-2-methyl-4-(methylthio)benzene*	5.7	0.8
123-86-4	Acetate, butyl	5.6	1.2
488-17-5	1,2-Benzenediol, 3-methyl-*	5.5	1.1
107-06-2	Ethane, 1,2-dichloro	5.5	1.3

UL ID:	SV3TFD
Sample Date:	November 15, 2020
Volume (L):	23.1

CAS Number	Compound	Concentration	
		µg/m³	ppb
2288-18-8	Benzene, (1-methylene-2-propenyl)*	5.4	1.0
71-36-3	1-Butanol (N-Butyl alcohol)	5.3	1.7
6627-88-9	Phenol, 2,6-dimethoxy-4-(2-propenyl)-*	5.3	0.7
765-43-5	Ethanone, 1-cyclopropyl*	5.2	1.5
28343-22-8	Phenol, 4-ethenyl-2,6-dimethoxy-*	5.2	0.7
121-33-5	Vanillin (Benzaldehyde, 4-hydroxy-3-methoxy-)*	5.2	0.8
110-43-0	2-Heptanone	5.2	1.1
55170-80-4	1-Decene, 2,4-dimethyl*	5.1	0.7
3663-46-5	5-Hydroxymethyl-2,2,5-trimethyl-1,3-dioxane*	5.0	0.8
59832-96-1	Guaiacol, 4-butyl-*	4.9	0.7
107-21-1	1,2-Ethanediol (Ethylene glycol)	4.9	1.9
4170-30-3	2-Butenal	4.7	1.6
6850-38-0	2-Aminocyclohexanol*	4.6	1.0
98-00-0	2-Furanmethanol*	4.5	1.1
1000408-40-1	6-Methyl-6-[(trimethylsilyl)oxy]heptan-2-amine*	4.4	0.5
930-27-8	Furan, 3-methyl*	4.3	1.3
334-48-5	Decanoic acid	4.3	0.6
55050-40-3	6-Octenal, 7-methyl-3-methylene-*	4.1	0.7
107-87-9	2-Pentanone*	4.0	1.1
91-22-5	Quinoline*	4.0	0.8
15176-21-3	1,4-Dioxane, 2,5-dimethyl*	3.9	0.8
13657-49-3	Benzene, 1,1'-(2-butene-1,4-diyl)bis-*	3.9	0.9
66582-16-9	4-Methyl-2-oxopentanenitrile*	3.8	0.8
1193-11-9	1,3-Dioxolane, 2,2,4-trimethyl*	3.7	0.8
109-08-0	Pyrazine, methyl*	3.7	0.9
57-55-6	1,2-Propanediol (Propylene glycol)	3.6	1.2
294-62-2	Cyclododecane	3.5	0.5
1000197-85-2	4-Hydroxy-4-methylhex-5-enoic acid, tert.-butyl ester*	3.5	0.4
58430-94-7	3,5,5-Trimethylhexyl acetate*	3.4	0.4
1081-75-0	Benzene, 1,1'-(1,3-propanediyl)bis*	3.3	0.4
108-65-6	1-Methoxy-2-propyl acetate*	3.3	0.6
14374-45-9	1-Phenyl-1-heptyne*	3.3	0.5
17429-04-8	2-Pentanone, 5-methoxy-*	3.1	0.7
585-74-0	Acetophenone, 3-methyl	3.1	0.6
635-67-6	1,2-Benzenediol, diacetate*	3.0	0.4
763-88-2	1,4-Hexadiene, 5-methyl*	3.0	0.8
1000365-14-5	6-Methyl-2-Heptanol, acetate*	3.0	0.4
35587-60-1	1-Methylindan-2-one*	3.0	0.5
127-19-5	Acetamide, N,N-dimethyl-*	2.9	0.8
2523-37-7	9H-Fluorene, 9-methyl-*	2.8	0.4
547-65-9	2(3H)-Furanone, dihydro-3-methylene-*	2.7	0.7
79-16-3	Acetamide, N-methyl*	2.7	0.9
6344-60-1	9H-Fluoren-9-one, 1-hydroxy-*	2.6	0.3
645-49-8	cis-Stilbene*	2.6	0.3
100-44-7	Benzyl chloride (Benzene, (Chloromethyl))*	2.4	0.5

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UL ID:	SV3TFD
Sample Date:	November 15, 2020
Volume (L):	23.1

CAS Number	Compound	Concentration	
		µg/m³	ppb
827-16-7	1.3.5-Triazine-2.4.6(1H.3H.5H)-trione. 1.3.5-trimethyl-*	2.4	0.3
68-12-2	Formamide, N,N-dimethyl*	2.4	0.8
75-50-3	Trimethylamine (Methanamine, N,N-dimethyl)*	2.3	1.0
2918-13-0	1-Hepten-3-one*	2.2	0.5
290-37-9	Pyrazine	2.1	0.7
111-15-9	Ethanol, 2-ethoxy-, acetate (Ethylene glycol monoethyl ether acetate)	2.1	0.4
111-66-0	1-Octene	2.1	0.5
530-48-3	Ethylene, 1,1-diphenyl-*	2.1	0.3
1632-76-4	3-Methylpyridazine*	2.0	0.5
3652-91-3	9H-Carbazole, 2-methyl-*	2.0	0.3
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	2.0	0.2
2274-11-5	Ethylene diacrylate*	2.0	0.3

Individual compounds and TVOC (total volatile organic compounds) are calibrated relative to toluene.

Field Blanks: Reported concentrations based on 18.0 L of volume sampled for VOCs. Actual field blanks are not intended to have a measurable amount of air sampled.

†Denotes quantified using multipoint authentic standard curve. Other VOCs quantified relative to toluene.

Values below 2.0 µg/m³ are for information purposes only. Chemical was detected, but below the quantifiable level of 0.04 µg based on a standard of 18 L air collection volume.

UL Environment's quality assurance program monitors blank sorbent media to ensure that the residual background does not exceed UL Environment's quality objective of ≤ 36 ng of total VOC.

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Project # 2011006NY_B15

1001086264.3469327

ACTIVE CHEMICAL SAMPLING CHAIN OF CUSTODY

Company: ULVS (Healthy Buildings)	Contact: CARESULTS@UL.COM	Project/P.O./Job Number: 2011006NY_B15
Address: 3251 Old Lee Highway #100 Fairfax, VA 22030	Phone: 571.655.7919 Fax: 703.323.4440	Sample Date: 15 Nov 2020 Investigator: SAM.HORNER

Please check the appropriate fields; Use separate COC for each sample method.

VOLATILE ORGANICS: IVOC SCAN: ___x__ TOP 20 IVOC _____ TVOC ONLY _____ OTHER ___B.T.E.X.

ALDEHYDE SCAN: _____ FORMALDEHYDE ONLY _____ | **ANALYSIS: LEED V4 ___ LEED V4.1 ___ OTHER _B.T.E.X.**

TAT: Standard __X__ Next Day Rush*_____ * Rush charges apply; please call in advance to confirm availability

Comments: Two (2) Week TAT Please – Looking for results December 1st. Thank you

UL ID	SAMPLE ID/ TUBE ID	SAMPLE LOCATION/ DESCRIPTION	START TIME	STOP TIME	TIME SAMPLED (MIN)	PUMP ID #	FLOW RATE (L/MIN)	VOLUME (L)
V01	2011006NY-15A/ s/n B26611	B15 _BR_04_Pre	08:05	09:05	60	4257	0.3061	18.3639
V02	2011006NY-15B/ s/n B26967	B15_BR_04_Post	11:19	12:25	66	5258	0.3077	20.3059
V03	2011006NY-15C/ s/n B26511	B15_BR_04_HZA	10:35	11:12	37	5516	0.6230	23.0506
V01F	2011006NY-15D/ s/n B26984	B15_BR_04_ Field Blank						n/a 18

Released By: SAM HORNER (Print/Sign) SH	Date/Time: 15Nov2020	Method of Shipment: UPS Next D
Received By:	Date/Time: 11/17/20 11:00 AM	Sample Condition: Acceptable

3469327

3469327

Description
VOC Tubes & Aldehyde Cartridges

Customer: UL Verification Services, Inc.

Received Date: 2020-NOV-17 02:57:13 PM

Aurora Project No.: 1001086264
Order No.:
Oracle Project No.:

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Date Issued: November 23, 2020
Product #: 1001086264-3469327
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