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	2010030NY_B12_D3
Date Received	November 6, 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 #: 1001079085-3445109
Report #: 1001079085-3445109

UL ID:	SV1TFDF
Sample Date:	November 3, 2020
Volume (L):	18.0

CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

Sample Location/Description	B12_D3_LR_Hall_Field Blank
Total Volatile Organic Compounds	9.4 µg/m³

CAS Number	**Compound**	**Concentration**	
		µg/m³	**ppb**
117-81-7	Diethylhexyl phthalate*	4.4	0.3
629-92-5	Nonadecane	2.9	0.3
629-62-9	Pentadecane	2.1	0.2

Date Issued: November 23, 2020
Product #: 1001079085-3445109
Report #: 1001079085-3445109

UL ID:	SV1TFD
Sample Date:	November 3, 2020
Volume (L):	18.3

CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

Sample Location/Description	B12_D3_LR_Hall_AM
Total Volatile Organic Compounds	107 µg/m³

CAS Number	Compound	Concentration	
		µg/m³	ppb
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	15.5	1.7
100-42-5	Styrene	12.7	3.0
64-19-7	Acetic acid	10.0	4.1
98-01-1	Furfural (2-Furaldehyde)	9.4	2.4
91-20-3	Naphthalene	9.1	1.7
116-09-6	2-Propanone, 1-hydroxy	7.3	2.4
66-25-1	Hexanal	4.6	1.1
80-62-6	Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)	4.1	1.0
120-92-3	Cyclopentanone	4.0	1.2
108-88-3	Toluene (Methylbenzene)	3.9	1.0
98-83-9	a-Methylstyrene (iso-Propenylbenzene; (1-Methylethenyl)benzene)	3.6	0.7
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	3.5	0.6
108-95-2	Phenol	3.2	0.8
30434-65-2	2-Cyclopenten-1-one, 3,4,4-trimethyl-*	3.2	0.6
141-32-2	Butyl acrylate (2-Propenoic Acid, butyl ester)	3.1	0.6
100-52-7	Benzaldehyde	2.9	0.7
25551-13-7	Trimethylbenzene (All Isomers)	2.8	0.6
287-92-3	Cyclopentane	2.7	0.9
71-36-3	1-Butanol (N-Butyl alcohol)	2.6	0.9
71-43-2	Benzene	2.5	0.8
5989-27-5	D-Limonene*	2.4	0.4
2425-77-6	1-Decanol, 2-hexyl*	2.1	0.2
110-62-3	Pentanal	2.1	0.6
98-86-2	Acetophenone (Ethanone, 1-phenyl)*	2.0	0.4

UL ID:	SV2TFD
Sample Date:	November 3, 2020
Volume (L):	19.3

CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

Sample Location/Description	B12_D3_LR_Hall_60_AM
Total Volatile Organic Compounds	126 µg/m³

CAS Number	Compound	Concentration	
		µg/m³	ppb
100-42-5	Styrene	14.9	3.5
98-01-1	Furfural (2-Furaldehyde)	11.8	3.0
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	11.5	1.3
91-20-3	Naphthalene	9.5	1.8
64-19-7	Acetic acid	9.1	3.7
116-09-6	2-Propanone, 1-hydroxy	8.4	2.8
66-25-1	Hexanal	7.1	1.7
80-62-6	Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)	5.2	1.3
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	4.6	0.8
71-43-2	Benzene	4.1	1.3
98-83-9	a-Methylstyrene (iso-Propenylbenzene; (1-Methylethenyl)benzene)	4.1	0.8
71-36-3	1-Butanol (N-Butyl alcohol)	3.9	1.3
141-32-2	Butyl acrylate (2-Propenoic Acid, butyl ester)	3.7	0.7
629-62-9	Pentadecane	3.7	0.4
108-95-2	Phenol	3.7	1.0
120-92-3	Cyclopentanone	3.7	1.1
541-02-6	Cyclopentasiloxane, decamethyl	3.6	0.2
108-88-3	Toluene (Methylbenzene)	3.4	0.9
30434-65-2	2-Cyclopenten-1-one, 3,4,4-trimethyl-*	3.3	0.6
100-52-7	Benzaldehyde	3.2	0.7
25551-13-7	Trimethylbenzene (All Isomers)	3.0	0.6
287-92-3	Cyclopentane	2.7	0.9
75-05-8	Acetonitrile	2.7	1.6
5989-27-5	D-Limonene*	2.4	0.4
271-89-6	Benzofuran*	2.2	0.5
110-62-3	Pentanal	2.2	0.6
629-92-5	Nonadecane	2.1	0.2

Date Issued: November 23, 2020
Product #: 1001079085-3445109
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UL ID:	SV3TFD
Sample Date:	November 3, 2020
Volume (L):	18.3

CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

Sample Location/Description	B12_D3_LR_Hall_PM
Total Volatile Organic Compounds	183 µg/m³

CAS Number	Compound	Concentration	
		µg/m³	ppb
100-42-5	Styrene	21.3	5.0
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	18.7	2.1
98-01-1	Furfural (2-Furaldehyde)	14.3	3.6
91-20-3	Naphthalene	12.6	2.4
64-19-7	Acetic acid	12.0	4.9
116-09-6	2-Propanone, 1-hydroxy	11.7	3.9
287-92-3	Cyclopentane	7.7	2.7
80-62-6	Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)	7.6	1.8
66-25-1	Hexanal	7.1	1.7
71-43-2	Benzene	7.0	2.2
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	6.5	1.2
71-36-3	1-Butanol (N-Butyl alcohol)	6.4	2.1
98-83-9	a-Methylstyrene (iso-Propenylbenzene; (1-Methylethenyl)benzene)	5.8	1.2
108-95-2	Phenol	5.3	1.4
108-88-3	Toluene (Methylbenzene)	5.0	1.3
100-52-7	Benzaldehyde	4.9	1.1
141-32-2	Butyl acrylate (2-Propenoic Acid, butyl ester)	4.9	0.9
120-92-3	Cyclopentanone	4.8	1.4
30434-65-2	2-Cyclopenten-1-one, 3,4,4-trimethyl-*	4.4	0.9
25551-13-7	Trimethylbenzene (All Isomers)	4.1	0.8
271-89-6	Benzofuran*	2.8	0.6
110-62-3	Pentanal	2.8	0.8
5989-27-5	D-Limonene*	2.6	0.5
1855-09-0	1,2-Propanediol, 1-phenyl-*	2.5	0.4
106-44-5	Phenol, 4-methyl (p-Cresol)*	2.5	0.6
98-86-2	Acetophenone (Ethanone, 1-phenyl)*	2.4	0.5
110-86-1	Pyridine	2.3	0.7
767-60-2	1H-Indene, 3-methyl*	2.3	0.4
431-03-8	2,3-Butanedione	2.3	0.7
5077-67-8	1-Hydroxy-2-butanone*	2.1	0.6
71-41-0	1-Pentanol (N-Pentyl alcohol)	2.1	0.6
100-47-0	Benzonitrile	2.1	0.5
3913-02-8	1-Octanol, 2-butyl-*	2.0	0.3

UL ID:	SV4TFD
Sample Date:	November 3, 2020
Volume (L):	18.2

CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

Sample Location/Description	B12_D3_LR_Hall_60_PM
Total Volatile Organic Compounds	367 µg/m³

CAS Number	Compound	Concentration	
		µg/m³	ppb
100-42-5	Styrene	36.9	8.7
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	32.0	3.6
64-19-7	Acetic acid	20.1	8.2
116-09-6	2-Propanone, 1-hydroxy	19.8	6.5
91-20-3	Naphthalene	17.8	3.4
98-01-1	Furfural (2-Furaldehyde)	16.6	4.2
287-92-3	Cyclopentane	13.3	4.6
66-25-1	Hexanal	11.9	2.9
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	11.4	2.0
71-43-2	Benzene	10.9	3.4
80-62-6	Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)	10.9	2.7
98-83-9	a-Methylstyrene (iso-Propenylbenzene; (1-Methylethenyl)benzene)	9.9	2.1
108-88-3	Toluene (Methylbenzene)	8.5	2.3
108-95-2	Phenol	8.4	2.2
141-32-2	Butyl acrylate (2-Propenoic Acid, butyl ester)	8.4	1.6
100-52-7	Benzaldehyde	8.1	1.9
120-92-3	Cyclopentanone	8.0	2.3
71-36-3	1-Butanol (N-Butyl alcohol)	7.7	2.5
30434-65-2	2-Cyclopenten-1-one, 3,4,4-trimethyl-*	7.1	7.2
19549-87-2	1-Heptene, 2,4-dimethyl*	5.3	1.0
110-62-3	Pentanal	4.7	1.3
271-89-6	Benzofuran*	4.6	1.0
123-91-1	1,4-Dioxane	4.2	1.2
106-44-5	Phenol, 4-methyl (p-Cresol)*	4.0	0.9
1855-09-0	1,2-Propanediol, 1-phenyl-*	4.0	0.6
108-65-6	1-Methoxy-2-propyl acetate*	3.9	0.7
5989-27-5	D-Limonene*	3.8	0.7
767-60-2	1H-Indene, 3-methyl*	3.8	0.7
21078-65-9	1-Decanol, 2-ethyl	3.8	0.5
98-86-2	Acetophenone (Ethanone, 1-phenyl)*	3.8	0.8
5077-67-8	1-Hydroxy-2-butanone*	3.7	1.0
71-41-0	1-Pentanol (N-Pentyl alcohol)	3.7	1.0
25551-13-7	Trimethylbenzene (All Isomers)	3.6	0.7
1330-20-7	Xylenes (Total)	3.5	0.8
100-47-0	Benzonitrile	3.5	0.8
3913-02-8	1-Octanol, 2-butyl-*	3.4	0.4

Date Issued: November 23, 2020
Product #: 1001079085-3445109
Report #: 1001079085-3445109

UL ID:	SV4TFD
Sample Date:	November 3, 2020
Volume (L):	18.2

CAS Number	Compound	Concentration	
		µg/m³	ppb
100-41-4	Benzene, ethyl	3.3	0.8
111-76-2	Ethanol, 2-butoxy	3.2	0.7
123-86-4	Acetate, butyl	3.2	0.7
93-51-6	Phenol, 2-methoxy-4-methyl*	3.1	0.5
110-86-1	Pyridine	3.1	1.0
620-02-0	2-Furancarboxaldehyde, 5-methyl*	3.0	0.7
74419-68-4	Histamine, N-benzoyl-2-cyano-*	2.9	0.3
67-64-1	Acetone	2.7	1.1
98-00-0	2-Furanmethanol*	2.6	0.7
3809-32-3	2,5-Dimethylcyclohexanol*	2.6	0.5
541-02-6	Cyclopentasiloxane, decamethyl	2.6	0.2
818-72-4	1-Octyn-3-ol	2.5	0.5
1120-36-1	1-Tetradecene	2.5	0.3
294-62-2	Cyclododecane	2.4	0.3
68-12-2	Formamide, N,N-dimethyl*	2.4	0.8
106-21-8	1-Octanol, 3,7-dimethyl	2.3	0.4
873-49-4	Cyclopropylbenzene	2.3	0.5
540-97-6	Cyclohexasiloxane, dodecamethyl	2.3	0.1
95-13-6	Indene*	2.3	0.5
99-87-6	Benzene, 1-methyl-4-(1-methylethyl) (p-Cymene; 4-Isopropyltoluene)	2.2	0.4
42781-12-4	2-Propanone, 1-(1-methylethoxy)-*	2.2	0.5
769-78-8	Vinyl benzoate*	2.2	0.4
78-93-3	2-Butanone (Methyl ethyl ketone, MEK)	2.1	0.7
1000282-22-3	Cyclobutanecarboxylic acid, 3-phenylethyl ester*	2.1	0.2
59642-07-8	Ethanone, 1-(1,2,2,3-tetramethylcyclopentyl)-, (1R-cis)-*	2.1	0.7
1120-73-6	2-Cyclopenten-1-one, 2-methyl*	2.0	0.5

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.

Date Issued: November 23, 2020
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Project # 2010030NY_B12_D3

100 1079085 · 344 5109

ACTIVE CHEMICAL SAMPLING CHAIN OF CUSTODY

Company: ULVS (Healthy Buildings)	Contact: CARESULTS@UL.COM	Project/P.O./Job Number: 2010030NY_B12_D3
Address: 3251 Old Lee Highway #100 Fairfax, VA 22030	Phone: 571.655.7919 Fax: 703.323.4440	Sample Date: 03 Nov 2020 Investigator: SAM.HORNER

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

VOLATILE ORGANICS: IVOC SCAN: _____ 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: One (1) Week TAT Please – Looking for results by COB Friday November 13th. 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	2010030NY-12J/ s/n B26980	B12_D3_LR_Hall_AM	08:34	12:34	240	2018	0.0764	18.336
V02	2010030NY-12K/ s/n B26526	B12_D3_LR_Hall_60_AM	08:01	09:04	63	5116	0.306585	19.31486
V03	2010030NY-12L/ s/n B26924	B12_D3_LR_Hall_PM	12:47	16:47	240	2018	0.0764	18.336
V04	2010030NY-12M/ s/n B27002	B12_D3_LR_Hall_60_PM	14:11	15:11	60	4257	0.302815	18.1689
V01F	2010030NY-12N/ s/n B26946	B12_D3_LR_Hall_Field Blank						n/a

Released By: SAM.HORNER (Print/Sign)	Date/Time: 05 Nov 2020	Method of Shipment: UPS Next D
Received By:	Date/Time: 11/6/20 12:25 PM	Sample Condition: Acceptable

3445109

3445109

Description
2010030NY_B12_D3

Customer: UL Verification Services, Inc.
Received Date: 2020-NOV-06 01:45:39 PM
Aurora Project No.: 1001079085
Order No.:
Oracle Project No.:

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Date Issued: November 23, 2020
Product #: 1001079085-3445109
Report #: 1001079085-3445109