




FIELD SAMPLING TEST REPORT	
<b>Customer Information</b>	UL VERIFICATION SERVICES, INC. LST.FAI.HBDCResults@ul.com 3251 Old Lee Highway, Suite 100 Fairfax VA 22030 USA
<b>HB Project Number</b>	2010030NY
<b>Date Received</b>	October 27, 2020
<b>Testing Laboratory Location</b>	UL Environment - Marietta, 2211 Newmarket Parkway, Marietta, GA 30067-9399 USA
<b>Method</b>	USEPA Compendium Method TO-17 ; ASTM 6196
<b>Authorized by</b>	 Allyson M. McFry Chemistry Laboratory Director
<p>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.</p> <p>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.</p> <p>This report shall not be reproduced, except in full, without permission from UL. Results contained within this report only apply to the actual product tested under the testing conditions documented in this report.</p>	

Date Issued: November 13, 2020  
Product #: 1001070976-3418351  
Report #: 1001070976-3418351  
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UL ID:	SV1TFD
Sample Date:	October 25, 2020
Volume (L):	18.2

## CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

Sample Location/Description		B09_BR_04_Pre	
Total Volatile Organic Compounds		543 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)	109	12.3
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	104	11.7
541-02-6	Cyclopentasiloxane, decamethyl	98.2	6.5
64-19-7	Acetic acid	31.2	12.7
66-25-1	Hexanal	17.8	4.3
111-76-2	Ethanol, 2-butoxy	11.9	2.5
91-20-3	Naphthalene	10.2	1.9
98-56-6	Benzene, 1-chloro-4-(trifluoromethyl)-*	10.1	1.4
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	9.1	1.6
142-96-1	n-Butyl ether	8.7	1.6
58175-57-8	2-Propyl-1-pentanol*	8.2	1.5
112-41-4	1-Dodecene	7.5	1.1
110-62-3	Pentanal	7.1	2.0
71-41-0	1-Pentanol (N-Pentyl alcohol)	7.1	2.0
629-50-5	Tridecane	6.9	0.9
3247-40-3	(1R,2S,4R)-2,7,7-Trimethylbicyclo[2.2.1]heptan-2-ol*	6.5	1.0
98-01-1	Furfural (2-Furaldehyde)	6.5	1.7
71-36-3	1-Butanol (N-Butyl alcohol)	6.3	2.1
124-19-6	Nonyl aldehyde (Nonanal)	5.8	1.0
79-41-4	2-Propenoic acid, 2-methyl*	5.6	1.6
33240-56-1	Hexane, 1-chloro-5-methyl*	5.4	1.1
108-88-3	Toluene (Methylbenzene)	5.0	1.3
112-40-3	Dodecane	4.8	0.7
1330-20-7	Xylenes (Total)	4.1	1.0
124-13-0	Octanal	3.7	0.7
57-55-6	1,2-Propanediol (Propylene glycol)	3.6	1.1
100-42-5	Styrene	3.5	0.8
110-43-0	2-Heptanone	3.4	0.7
100-52-7	Benzaldehyde	3.4	0.8
96-29-7	2-Butanone, oxime*	3.2	0.9
144-19-4	1,3-Pentanediol, 2,2,4-trimethyl	3.2	0.5
112-31-2	Decanal*	3.1	0.5
140-67-0	Estragole (4-Allylanisole)	3.1	0.5
123-86-4	Acetate, butyl	3.0	0.6
1120-21-4	Undecane	2.9	0.5

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Volume (L):	18.2

CAS Number	Compound	Concentration	
		µg/m³	ppb
112-53-8	1-Dodecanol*	2.6	0.3
1000365-51-1	2-Ethyl-1-hexanol, pentafluoropropionate*	2.5	0.2
90-12-0	Naphthalene, 1-methyl	2.4	0.4
111-87-5	1-Octanol	2.4	0.5
17312-57-1	Dodecane, 3-methyl*	2.4	0.3
116-09-6	2-Propanone, 1-hydroxy	2.3	0.8
106-21-8	1-Octanol, 3,7-dimethyl	2.3	0.4
79-31-2	Propanoic acid, 2-methyl*	2.3	0.6
95-92-1	Ethanedioic acid, diethyl ester*	2.1	0.4
53941-19-8	2-Hexene, 3,4,4-trimethyl-*	2.0	0.4
1000099-98-7	1-Ethylpropyl 2-ethylhexanoate*	2.0	0.2
62016-34-6	Octane, 2,3,7-trimethyl*	2.0	0.3
18479-58-8	7-Octen-2-ol, 2,6-dimethyl*	2.0	0.3
100-41-4	Benzene, ethyl	2.0	0.4

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UL ID:	SV1TFDF
Sample Date:	October 25, 2020
Volume (L):	18.0

## CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

<b>Sample Location/Description</b>		B09_BR_04_Field Blank	
<b>Total Volatile Organic Compounds</b>		7.4 µg/m <sup>3</sup>	
CAS Number	Compound	Concentration	
		µg/m <sup>3</sup>	ppb
94-28-0	Hexanoic acid, 2-ethyl-, 1,2-ethanediylbis(oxy-2,1-ethanediyl) ester*	7.4	0.4
109-67-1	1-Pentene	3.1	1.1

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UL ID:	SV2TFD
Sample Date:	October 25, 2020
Volume (L):	18.2

## CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

Sample Location/Description		B09_BR_04_Post	
Total Volatile Organic Compounds		256 µg/m³	
CAS Number	Compound	Concentration	
		µg/m³	ppb
100-42-5	Styrene	62.8	14.7
71-43-2	Benzene	35.4	11.1
64-19-7	Acetic acid	24.1	9.8
80-62-6	Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)	14.3	3.5
108-88-3	Toluene (Methylbenzene)	14.2	3.8
19549-87-2	1-Heptene, 2,4-dimethyl*	12.7	2.5
91-20-3	Naphthalene	10.1	1.9
116-09-6	2-Propanone, 1-hydroxy	9.9	3.3
42781-12-4	2-Propanone, 1-(1-methylethoxy)*	8.3	1.7
100-41-4	Benzene, ethyl	6.4	1.5
1330-20-7	Xylenes (Total)	6.3	1.4
98-86-2	Acetophenone (Ethanone, 1-phenyl)*	5.0	1.0
98-83-9	a-Methylstyrene (iso-Propenylbenzene; (1-Methylethenyl)benzene)	4.7	1.0
141-32-2	Butyl acrylate (2-Propenoic Acid, butyl ester)	4.5	0.9
95-13-6	Indene*	4.1	0.9
100-47-0	Benzonitrile	4.0	1.0
100-52-7	Benzaldehyde	3.9	0.9
4359-46-0	1,3-Dioxolane, 2-ethyl-4-methyl*	3.8	0.8
626-93-7	2-Hexanol*	3.7	0.9
66-25-1	Hexanal	3.7	0.9
98-01-1	Furfural (2-Furaldehyde)	3.6	0.9
769-78-8	Vinyl benzoate*	3.4	0.6
15176-21-3	1,4-Dioxane, 2,5-dimethyl*	3.1	0.7
120-92-3	Cyclopentanone	3.0	0.9
90-05-1	Phenol, 2-methoxy*	2.8	0.5
627-08-7	Propane, 1-(1-methylethoxy)*	2.7	0.6
71-36-3	1-Butanol (N-Butyl alcohol)	2.6	0.9
2568-96-9	1,3-Dioxolane, 2-ethyl*	2.5	0.6
108-95-2	Phenol	2.4	0.6
565-69-5	3-Pentanone, 2-methyl*	2.3	0.5
1193-11-9	1,3-Dioxolane, 2,2,4-trimethyl*	2.2	0.5
22580-90-1	1,4-p-Menthadien-7-al*	2.0	0.3
107-87-9	2-Pentanone*	2.0	0.6
96-18-4	Propane, 1,2,3-trichloro	2.0	0.3
1000191-08-0	1-Hydroxy-4,4-dimethylcyclohexanecarbonitrile*	2.0	0.3

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Volume (L):	7.0

## CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

Sample Location/Description		B09_BR_04_30min_HZA	
Total Volatile Organic Compounds		5,150 µg/m³	
CAS Number	Compound	Concentration	
		µg/m³	ppb
64-19-7	Acetic acid	598	244
1330-20-7	Xylenes (Total)	350	80.6
629-20-9	1,3,5,7-Cyclooctatetraene*	304	71.5
91-20-3	Naphthalene	194	37.1
120-92-3	Cyclopentanone	135	39.3
116-09-6	2-Propanone, 1-hydroxy	132	43.7
71-43-2	Benzene	116	36.2
108-88-3	Toluene (Methylbenzene)	113	29.9
91-10-1	Phenol, 2,6-dimethoxy*	110	17.5
90-05-1	Phenol, 2-methoxy*	108	21.3
2785-89-9	Phenol, 4-ethyl-2-methoxy*	107	17.2
5912-86-7	Phenol, 2-methoxy-4-(1-propenyl)-, (Z)-*	105	15.6
7786-61-0	2-Methoxy-4-vinylphenol*	98.0	16.0
80-71-7	2-Cyclopenten-1-one, 2-hydroxy-3-methyl-*	93.4	20.4
92-52-4	1,1'-Biphenyl*	89.8	14.2
93-51-6	Phenol, 2-methoxy-4-methyl*	83.0	14.7
208-96-8	Acenaphthylene*	81.5	13.1
110-62-3	Pentanal	80.7	22.9
108-95-2	Phenol	79.0	20.5
498-60-2	3-Furaldehyde*	76.4	19.5
7790-01-4	Propanedinitrile, (acetyloxy)methyl-*	69.3	12.3
19784-98-6	Phenol, 2-methoxy-5-(1-propenyl)-, (E)-*	66.9	10.0
98-86-2	Acetophenone (Ethanone, 1-phenyl)*	64.6	13.1
106-44-5	Phenol, 4-methyl (p-Cresol)*	61.9	14.0
16327-40-5	4,7-Methano-1H-inden-1-ol, 3a,4,7,7a-tetrahydro-, acetate*	60.7	16.5
95-13-6	Indene*	60.4	12.7
42781-12-4	2-Propanone, 1-(1-methylethoxy)-*	59.5	12.5
103495-51-8	Tricyclo[3.1.0.0(2,4)]hex-3-ene-3-carbonitrile*	58.9	14.0
21835-01-8	2-Cyclopenten-1-one, 3-ethyl-2-hydroxy-*	58.7	11.4
109-06-8	Pyridine,2-methyl (2-Picoline)*	52.2	13.7
109-97-7	Pyrrole*	51.9	18.9
930-30-3	2-Cyclopenten-1-one*	51.7	15.4
80-62-6	Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)	50.4	12.3
1121-05-7	2-Cyclopenten-1-one, 2,3-dimethyl-*	45.7	10.2
95-48-7	Phenol, 2-methyl*	44.9	10.2
100-52-7	Benzaldehyde	43.3	10.0

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Volume (L):	7.0

CAS Number	Compound	Concentration	
		µg/m³	ppb
498-07-7	1,6-Anhydro-.beta.-D-glucopyranose (levoglucosan)*	40.3	6.1
1000193-44-3	2,6-Dimethyl-octa-2,6-dien-1-ol*	37.7	6.0
1000192-98-8	5-Methyl-4,5-dihydroisoxazole-5-carboxylic acid, methyl este*	35.1	6.4
672-66-2	Dimethylphenylphosphine*	34.8	6.2
39986-37-3	2,4-Dimethyl-2-oxazoline-4-methanol*	34.1	6.5
135-77-3	1,2,4-Trimethoxybenzene*	33.5	4.9
105-67-9	Phenol, 2,4-dimethyl	33.0	6.6
98-91-9	Benzenecarbothioic acid*	32.1	5.7
96-54-8	1H-Pyrrole, 1-methyl-*	32.0	9.6
91-57-6	Naphthalene, 2-methyl	31.8	5.5
107-06-2	Ethane, 1,2-dichloro	31.6	7.8
7473-98-5	2-Hydroxy-iso-butyrophenone*	30.6	4.5
2758-18-1	2-Cyclopenten-1-one, 3-methyl*	30.3	7.7
98-83-9	a-Methylstyrene (iso-Propenylbenzene; (1-Methylethenyl)benzene)	30.1	6.2
497-26-7	1,3-Dioxolane, 2-methyl*	29.2	8.1
25265-77-4	2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate	28.4	3.2
85-01-8	Phenanthrene*	27.9	3.8
6627-88-9	Phenol, 2,6-dimethoxy-4-(2-propenyl)-*	27.7	3.5
2295-58-1	Flopropione*	25.3	3.4
1703-52-2	Furan, 2-ethyl-5-methyl-*	23.8	5.3
83-33-0	1H-Inden-1-one, 2,3-dihydro-*	23.2	4.3
28343-22-8	Phenol, 4-ethenyl-2,6-dimethoxy-*	22.6	3.1
86-73-7	2,2-Metaylenebiphenyl (Fluorene)*	22.4	3.3
620-17-7	Phenol, 3-ethyl-*	21.5	4.3
1120-73-6	2-Cyclopenten-1-one, 2-methyl*	21.3	5.4
132-64-9	Dibenzofuran*	21.2	3.1
141-32-2	Butyl acrylate (2-Propenoic Acid, butyl ester)	20.1	3.8
600-14-6	2,3-Pentanedione*	18.9	4.6
27522-11-8	1-Pentanol, 2-ethyl*	18.0	3.8
581-42-0	Naphthalene, 2,6-dimethyl*	17.2	2.7
591-11-7	2(5H)-Furanone, 5-methyl-*	16.9	4.2
15677-15-3	Cycloprop[a]indene, 1,1a,6,6a-tetrahydro-*	16.9	3.2
98-00-0	2-Furanmethanol*	16.8	4.2
7642-04-8	2-Octene, (Z)*	16.4	3.6
50551-88-7	5-Hexen-2-ol, 5-methyl-*	16.4	2.1
27765-76-0	Amphetamine, -propionyl*	16.1	2.1
66-25-1	Hexanal	16.0	3.9
5989-27-5	D-Limonene*	16.0	2.9
2523-37-7	9H-Fluorene, 9-methyl-*	15.9	2.2
294-62-2	Cyclododecane	15.7	2.3
107-21-1	1,2-Ethanediol (Ethylene glycol)	15.6	6.1
1000367-08-2	1-Propoxypropan-2-yl acetate*	15.4	2.4
16312-79-1	4-Methylurazole*	15.0	3.2

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Volume (L):	7.0

CAS Number	Compound	Concentration	
		µg/m³	ppb
3944-37-4	1-Propanol, 2-(1-methylethoxy)-*	14.9	3.1
68-12-2	Formamide, N,N-dimethyl*	14.6	4.9
583-58-4	Pyridine, 3,4-dimethyl*	14.1	3.2
4359-46-0	1,3-Dioxolane, 2-ethyl-4-methyl*	14.0	2.9
2785-87-7	Phenol, 2-methoxy-4-propyl-*	13.5	2.0
290-37-9	Pyrazine	13.3	4.1
10312-83-1	Acetaldehyde, methoxy*	13.0	4.3
625-86-5	Furan, 2,5-dimethyl-*	12.6	3.2
431-03-8	2,3-Butanedione	12.1	3.4
4170-30-3	2-Butenal	11.8	4.1
15176-21-3	1,4-Dioxane, 2,5-dimethyl*	11.6	2.4
109-08-0	Pyrazine, methyl*	11.4	3.0
581-40-8	Naphthalene, 2,3-dimethyl*	11.4	1.8
71-36-3	1-Butanol (N-Butyl alcohol)	11.3	3.7
565-80-0	3-Pentanone, 2,4-dimethyl*	11.0	2.4
78-93-3	2-Butanone (Methyl ethyl ketone, MEK)	10.7	3.6
534-22-5	Furan, 2-methyl-*	10.7	3.2
1081-75-0	Benzene, 1,1'-(1,3-propanediyl)bis*	9.8	1.2
111-15-9	Ethanol, 2-ethoxy-, acetate (Ethylene glycol monoethyl ether acetate)	9.8	1.8
13657-49-3	Benzene, 1,1'-(2-butene-1,4-diyl)bis-*	9.3	1.1
75-50-3	Trimethylamine (Methanamine, N,N-dimethyl)*	8.6	3.5
24347-58-8	2,3-Butanediol	8.1	2.2
98-82-8	Benzene, 1-methylethyl (Cumene)	8.0	1.6
765-43-5	Ethanone, 1-cyclopropyl*	7.5	2.2
5076-20-0	Oxirane, tetramethyl-*	7.1	1.7
2047-21-4	Ethanone, 1-(3,4,5-trimethylphenyl)-*	7.1	2.8
645-49-8	cis-Stilbene*	6.9	0.9
87345-52-6	Homosyringaldehyde*	6.9	0.9
78-83-1	1-Propanol, 2-methyl (Isobutyl alcohol)	6.7	2.2
98-96-4	Pyrazinamide*	6.4	1.3
137-43-9	Cyclopentane, bromo-*	6.4	1.1
6846-50-0	TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	6.4	0.5
6100-74-9	Ethanone, 1-(3-hydroxy-4-methoxyphenyl)-*	6.2	0.9
92-81-9	Acridine, 9,10-dihydro-*	5.9	0.8
928-55-2	Ethyl-1-propenyl ether*	5.7	1.6
203-80-5	1H-Phenylene*	5.4	0.8
1000116-22-3	2-Pentanone, 1-(2,4,6-trihydroxyphenyl)*	4.9	0.6
554-12-1	Propanoic acid, methyl ester*	4.5	1.3
2916-31-6	1,3-Dioxolane, 2,2-dimethyl-*	4.4	1.1
1515-72-6	N-n-Butylphthalimide*	4.3	0.5
96-33-3	2-Propenoic acid, methyl ester*	3.7	1.0
620-02-0	2-Furancarboxaldehyde, 5-methyl*	3.6	0.8
563-80-4	2-Butanone, 3-methyl*	2.6	0.7
29881-14-9	1,2-Diphenylcyclopropane*	2.3	0.3

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Sample Date:	October 25, 2020
Volume (L):	7.0

CAS Number	Compound	Concentration	
		µg/m <sup>3</sup>	ppb
141-78-6	Acetate, ethyl	2.0	0.6

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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.

Values below 2.0 µg/m<sup>3</sup> 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 # 2010030NY\_B09

1001070976-3418351



ACTIVE CHEMICAL SAMPLING CHAIN OF CUSTODY			
Company: ULVS (Healthy Buildings)		Contact: CARESULTS@UL.COM	Project/P.O./Job Number: 2010030NY_B09
Address: 3251 Old Lee Highway #100 Fairfax, VA 22030		Phone: 571.655.7919 Fax: 703.323.4440	Sample Date: 25OCT2020 Investigator: SAM.HORNER
Please check the appropriate fields; Use separate COC for each sample method.	VOLATILE ORGANICS: IVOC SCAN: <u>TOP 20 IVOC</u> <u>TVOC ONLY</u> <u>OTHER</u> <u>B.T.E.X.</u>		
	ALDEHYDE SCAN: <u>FORMALDEHYDE ONLY</u> <u>ANALYSIS: LEED V4</u> <u>LEED V4.1</u> <u>OTHER</u> <u>B.T.E.X.</u>		
	TAT: Standard <u>X</u> Next Day Rush* <u>      </u> * Rush charges apply; please call in advance to confirm availability		

Comments: One (1) Week TAT Please – Looking for results by COB Tuesday November 3<sup>rd</sup>. 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-09A/ s/n B27011	B09_BR_04_Pre	08:05	09:05	60	4257	0.303	18.18L
V02	2010030NY-09B/ s/n B26474	B09_BR_04_Post	11:46	12:46	60	4257	0.304	18.22L
V03	2010030NY-09C/ s/n B26875	B09_BR_04_30min_HZA	11:06	11:38	38	5119	0.218	6.98L
V01F	2010030NY-09D/ s/n B26959	B09_BR_04_Field Blank						n/a
Released By: SAM.HORNER (Print/Sign)	Date/Time: 26OCT2020	Method of Shipment: UPS Next Day						
Received By: <i>[Signature]</i>	Date/Time: 10/27/20 11:00 AM	Sample Condition: Acceptable						

3418351

Description  
VOC Tubes and DNPH Cartridges

Customer: UL Verification Services, Inc.  
Aurora Project No.: 1001070976  
Received Date: 2020-OCT-27 11:54:42 AM  
Order No.: Oracle Project No.:

1 of 2