| FIELD SAMPLING TEST REPORT | |
|---|---|
| **Customer Information** | UL VERIFICATION SERVICES, INC.<br>LST.FAI.HBDCResults@ul.com<br>3251 Old Lee Highway, Suite 100<br>Fairfax VA 22030<br>USA |
| **HB Project Number** | 2010030NY_B12_D1 |
| **Date Received** | November 4, 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** |  <br>Allyson M. McFry<br>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 18, 2020
Product #: 1001070976-3438892
Report #: 1001070976-3438892

| | |
|---|---|
| UL ID: | SV1TFDF |
| Sample Date: | November 1, 2020 |
| Volume (L): | 18.0 |

## CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

| | |
|---|---|
| **Sample Location/Description** | B12_D1_LR_Hall_Field Blank |
| **Total Volatile Organic Compounds** | BQL |

| CAS Number | Compound | Concentration | |
|---|---|---|---|
| | | µg/m³ | ppb |
| 109-67-1 | 1-Pentene | 3.5 | 1.2 |

Date Issued: November 18, 2020
Product #: 1001070976-3438892
Report #: 1001070976-3438892

| UL ID: | SV1TFD |
|---|---|
| Sample Date: | November 1, 2020 |
| Volume (L): | 18.4 |

## CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

| Sample Location/Description | B12_D1_LR_Hall_AM |
|---|---|
| Total Volatile Organic Compounds | 93.4 µg/m³ |

| CAS Number | Compound | Concentration | |
|---|---|---|---|
| | | µg/m³ | ppb |
| 100-42-5 | Styrene | 21.3 | 5.0 |
| 64-19-7 | Acetic acid | 10.4 | 4.3 |
| 80-62-6 | Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester) | 10.1 | 2.5 |
| 71-43-2 | Benzene | 8.4 | 2.6 |
| 116-09-6 | 2-Propanone, 1-hydroxy | 7.4 | 2.4 |
| 91-20-3 | Naphthalene | 6.4 | 1.2 |
| 66-25-1 | Hexanal | 5.5 | 1.3 |
| 98-01-1 | Furfural (2-Furaldehyde) | 4.8 | 1.2 |
| 19549-87-2 | 1-Heptene, 2,4-dimethyl* | 4.7 | 0.9 |
| 108-88-3 | Toluene (Methylbenzene) | 4.6 | 1.2 |
| 141-32-2 | Butyl acrylate (2-Propenoic Acid, butyl ester) | 4.1 | 0.8 |
| 98-83-9 | a-Methylstyrene (iso-Propenylbenzene; (1-Methylethenyl)benzene) | 3.3 | 0.7 |
| 77-68-9 | Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester (component of Texanol) | 2.8 | 0.3 |
| 71-36-3 | 1-Butanol (N-Butyl alcohol) | 2.6 | 0.9 |
| 100-52-7 | Benzaldehyde | 2.6 | 0.6 |
| 120-92-3 | Cyclopentanone | 2.5 | 0.7 |
| 1330-20-7 | Xylenes (Total) | 2.3 | 0.5 |

Date Issued: November 18, 2020
Product #: 1001070976-3438892
Report #: 1001070976-3438892

| UL ID: | SV2TFD |
|---|---|
| Sample Date: | November 1, 2020 |
| Volume (L): | 18.4 |

## CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

| Sample Location/Description | B12_D1_LR_Hall_60_AM |
|---|---|
| Total Volatile Organic Compounds | 184 µg/m³ |

| CAS Number | Compound | Concentration | |
|---|---|---|---|
| | | µg/m³ | ppb |
| 100-42-5 | Styrene | 31.5 | 7.4 |
| 71-43-2 | Benzene | 18.0 | 5.6 |
| 80-62-6 | Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester) | 17.4 | 4.3 |
| 64-19-7 | Acetic acid | 17.1 | 7.0 |
| 116-09-6 | 2-Propanone, 1-hydroxy | 11.9 | 3.9 |
| 66-25-1 | Hexanal | 9.9 | 2.4 |
| 108-88-3 | Toluene (Methylbenzene) | 8.0 | 2.1 |
| 98-01-1 | Furfural (2-Furaldehyde) | 8.0 | 2.0 |
| 91-20-3 | Naphthalene | 8.0 | 1.5 |
| 19549-87-2 | 1-Heptene, 2,4-dimethyl* | 7.2 | 1.4 |
| 141-32-2 | Butyl acrylate (2-Propenoic Acid, butyl ester) | 6.7 | 1.3 |
| 541-02-6 | Cyclopentasiloxane, decamethyl | 5.4 | 0.4 |
| 98-83-9 | a-Methylstyrene (iso-Propenylbenzene; (1-Methylethenyl)benzene) | 4.4 | 0.9 |
| 71-36-3 | 1-Butanol (N-Butyl alcohol) | 4.2 | 1.4 |
| 120-92-3 | Cyclopentanone | 4.1 | 1.2 |
| 1330-20-7 | Xylenes (Total) | 3.7 | 0.8 |
| 590-86-3 | Butanal, 3-methyl* | 3.4 | 1.0 |
| 100-41-4 | Benzene, ethyl | 3.2 | 0.7 |
| 95-13-6 | Indene* | 3.0 | 0.6 |
| 271-89-6 | Benzofuran* | 2.9 | 0.6 |
| 100-52-7 | Benzaldehyde | 2.9 | 0.7 |
| 77-68-9 | Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester (component of Texanol) | 2.7 | 0.3 |
| 80-56-8 | Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene) | 2.6 | 0.5 |
| 123-86-4 | Acetate, butyl | 2.4 | 0.5 |
| 30434-65-2 | 2-Cyclopenten-1-one, 3,4,4-trimethyl-* | 2.3 | 0.5 |
| 109-67-1 | 1-Pentene | 2.2 | 0.8 |
| 872-05-9 | 1-Decene | 2.1 | 0.4 |
| 100-47-0 | Benzonitrile | 2.1 | 0.5 |
| 300-57-2 | Allylbenzene | 2.1 | 0.4 |
| 620-02-0 | 2-Furancarboxaldehyde, 5-methyl* | 2.0 | 0.4 |
| 25551-13-7 | Trimethylbenzene (All Isomers) | 2.0 | 0.4 |

Date Issued: November 18, 2020
Product #: 1001070976-3438892
Report #: 1001070976-3438892

| UL ID: | SV3TFD |
|---|---|
| Sample Date: | November 1, 2020 |
| Volume (L): | 18.4 |

## CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

| Sample Location/Description | B12_D1_LR_Hall_PM |
|---|---|
| Total Volatile Organic Compounds | 55.2 µg/m³ |

| CAS Number | Compound | Concentration | |
|---|---|---|---|
| | | µg/m³ | ppb |
| 100-42-5 | Styrene | 12.1 | 2.8 |
| 64-19-7 | Acetic acid | 8.3 | 3.4 |
| 116-09-6 | 2-Propanone, 1-hydroxy | 7.2 | 2.4 |
| 80-62-6 | Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester) | 5.0 | 1.2 |
| 91-20-3 | Naphthalene | 4.8 | 0.9 |
| 71-43-2 | Benzene | 4.1 | 1.3 |
| 19549-87-2 | 1-Heptene, 2,4-dimethyl* | 3.0 | 0.6 |
| 98-01-1 | Furfural (2-Furaldehyde) | 2.9 | 0.7 |
| 66-25-1 | Hexanal | 2.7 | 0.7 |
| 108-88-3 | Toluene (Methylbenzene) | 2.6 | 0.7 |
| 141-32-2 | Butyl acrylate (2-Propenoic Acid, butyl ester) | 2.6 | 0.5 |
| 100-52-7 | Benzaldehyde | 2.2 | 0.5 |
| 77-68-9 | Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester (component of Texanol) | 2.1 | 0.2 |
| 71-36-3 | 1-Butanol (N-Butyl alcohol) | 2.0 | 0.7 |
| 120-92-3 | Cyclopentanone | 2.0 | 0.6 |

| UL ID: | SV4TFD |
|---|---|
| Sample Date: | November 1, 2020 |
| Volume (L): | 18.1 |

## CONCENTRATIONS OF TOTAL AND INDIVIDUAL VOLATILE ORGANIC COMPOUNDS

| **Sample Location/Description** | B12_D1_LR_Hall_60_PM |
|---|---|
| **Total Volatile Organic Compounds** | 39.9 µg/m³ |

| **CAS Number** | **Compound** | **Concentration** | |
|---|---|---|---|
| | | **µg/m³** | **ppb** |
| 100-42-5 | Styrene | 9.3 | 2.2 |
| 64-19-7 | Acetic acid | 7.5 | 3.1 |
| 116-09-6 | 2-Propanone, 1-hydroxy | 5.6 | 1.8 |
| 80-62-6 | Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester) | 3.7 | 0.9 |
| 71-43-2 | Benzene | 3.6 | 1.1 |
| 91-20-3 | Naphthalene | 3.5 | 0.7 |
| 100-52-7 | Benzaldehyde | 2.6 | 0.6 |
| 19549-87-2 | 1-Heptene, 2,4-dimethyl* | 2.6 | 0.5 |
| 98-01-1 | Furfural (2-Furaldehyde) | 2.6 | 0.7 |
| 66-25-1 | Hexanal | 2.2 | 0.5 |
| 108-88-3 | Toluene (Methylbenzene) | 2.2 | 0.6 |
| 141-32-2 | Butyl acrylate (2-Propenoic Acid, butyl ester) | 2.0 | 0.4 |

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.

Page 1 of 1

Project # 2010030NY_B12_D1

1001070976 · 3438892

## ACTIVE CHEMICAL SAMPLING CHAIN OF CUSTODY

| | | |
|---|---|---|
| Company: ULVS (Healthy Buildings) | Contact: CARESULTS@UL.COM | Project/P.O./Job Number: 2010030NY_B12_D1 |
| Address: 3251 Old Lee Highway #100 Fairfax, VA 22030 | Phone: 571.655.7919 | Sample Date: 01 Nov 2020 |
| | Fax: 703.323.4440 | 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 Tuesday November 10th. 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-12D/ s/n B27052 | B12_D1_LR_Hall_AM | 08:12 | 12:12 | 240 | 2018 | 0.07681 | 18.4344 L |
| V02 | 2010030NY-12E/ s/n B26910 | B12_D1_LR_Hall_60_AM | 08:01 | 09:02 | 61 | 5116 | 0.30182 | 18.4107 L |
| V03 | 2010030NY-12F/ s/n B26480 | B12_D1_LR_Hall_PM | 12:19 | 16:19 | 240 | 2018 | 0.07681 | 18.4344 L |
| V04 | 2010030NY-12G/ s/n B27028 | B12_D1_LR_Hall_60_PM | 13:49 | 14:49 | 60 | 4257 | 0.30149 | 18.0894 L |
| V01F | 2010030NY-12H/ s/n B26276 | B12_D1_LR_Hall_Field Blank | | | | | | n/a |
| | | | | | | | | |
| | | | | | | | | |

Released By: SAM.HORNER (Print/Sign) — Date/Time: 03 Nov 2020 — Method of Shipment: UPS Next

Received By: — Date/Time: 11/4/20 10:15AM — Sample Condition: Acceptable

3438892


Description

Customer: UL Verification Services, Inc.

Received Date: 2020-NOV-04 04:01:43 PM

Aurora Project No.: 1001070976

Order No.:

Oracle Project No.:

3 of 4

Date Issued: November 18, 2020
Product #: 1001070976-3438892
Report #: 1001070976-3438892