

MOMENTUM TEST REPORT

SCOPE OF WORK

CDPH 01350 Standard Method Version 1.2 on Zintra

REPORT NUMBER

105108702GRR-001c

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TEST REPORT FOR MOMENTUM TEXTILES & WALLCOVERING

Report No.: 105108702GRR-001c

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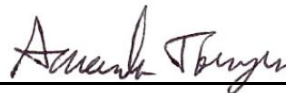
SECTION 1

CLIENT INFORMATION

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SECTION 2

SUMMARY AND CONCLUSION

Test Method: Standard Method Version 1.2 for CDPH 01350
Modeling Scenario: Private office (PO), school classroom (SC) and single family residence (R)

DESCRIPTION OF SAMPLES

Manufacturer / Location Baresque LLC / Deer Park, Illinois, USA
Product Name Zintra
Product Number Not Specified
Date of Manufacture 05-July-2022
Date of Collection 08-July-2022
Date of Shipment 08-July-2022
Date Received by Lab 13-July-2022
Date of Test Start 29-July-2022
As Received Sample Condition Good Condition
Lab Sample ID GRR2207130006

WORK REQUESTED/APPLICABLE DOCUMENTS

VOC Emissions Analysis: CDPH Standard Method v1.2
Intertek Quote: Qu-01272336

TEST RESULTS

MODELING SCENARIO	RESULT (PASS/FAIL)	TVOC (mg m ⁻³)
Private Office (PO)	PASS	0.2
School Classroom (SC)	PASS	0.1
Single Family Residence (R)*	PASS	0.5

*Note: The single family residence scenario is not yet a CDPH requirement. It is provided for informational purposes only.

SAMPLE DISPOSITION

At the completion of testing, samples were disposed of in a routine manner.

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SECTION 3

CDPH STANDARD METHOD V1.2

Date Received: 13-July-2022
Dates Tested: 29-July-2022 to 12-August-2022

DESCRIPTION OF SAMPLES:

Product Description: 1/2" PET
Material Submitted: Four (4) slabs of acoustic paneling

ACCEPTANCE CRITERIA:

Referencing: CDPH Standard Method v1.2, Table 4.1
LEED v4 - Low Emitting Materials
LEED v4 - TVOC Ranges: $\leq 0.5 \text{ mg m}^{-3}$
 $0.5 \text{ to } 5.0 \text{ mg m}^{-3}$
 $\geq 5.0 \text{ mg m}^{-3}$

TEST NOTES OR DEVIATIONS:

Sample conditioning fell below $50 \pm 10 \%$ RH for 6% of the conditioning period, this is not expected to impact results. Samples submitted by client were not wrapped in aluminum foil as outlined by CDPH 01350.

TEST SUMMARY:

The emissions testing was performed according to "Standard Method for the Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers Version 1.2". A photograph of the tested sample is included herein. The sample was attached to a stainless steel plate using strips of aluminized tape and placed into the test chamber with top surface exposed. Air samples were collected prior to the sample being placed in the test chamber (0 hours) and at 264, 288, and 336 hours after being placed in the test chamber. Samples analyzed for individual VOCs and TVOC were collected on multi-sorbent tubes containing glass wool, Tenax TA 35/60 and Carbograph 5 TD 40/60. These VOC samples were analyzed by thermal desorption-gas chromatography/mass-spectrometry, TD-GC/MS. TVOC was calculated through integration of the chromatogram from n-pentane through n-heptadecane using toluene as a surrogate. Individual VOCs were calculated using calibration curves based on pure standards unless otherwise noted. Samples analyzed for low molecular weight aldehydes were collected on cartridges treated with 2,4-di-nitrophenylhydrazine (DNPH). Low molecular weight aldehydes were analyzed using high performance liquid chromatography, HPLC.

Table 1: Conditioning and test timing

EXPERIMENT PHASE	START DATE	DURATION
Conditioning	29-July-2022	10 days
Chamber Testing	08-August-2022	4 days

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RESULTS:**Table 2: Sample and Chamber Conditions during Test Period**

PARAMETER		SYMBOL	VALUE	UNITS
Sample Dimensions	Length	-	0.295	m
	Width	-	0.294	m
	Thickness	-	0.012	m
Exposed Sample Surface Area		A	0.087	m ²
Chamber Volume		V	0.116	m ³
Chamber Loading Factor		L	0.75	m ² m ⁻³
Inlet Air Flow Rate		Q	0.116	m ³ h ⁻¹
Air Change Rate		N _{ACH}	1.00	h ⁻¹
Area Specific Flow Rate		q _A	1.34	m h ⁻¹
Chamber Pressure (Range)		P	16.9 (11.7-23.9)	Pa
Average Temperature (Range)		T	23.4 (23.0-23.5)	°C
Average Humidity (Range)		RH	49.9 (47.3-51.6)	% RH
Testing Duration		t	336	h

Table 3: Parameters of Conditioning

PARAMETER	VALUE	UNITS
Average Temperature (Range)	23.8 (23.2-24.4)	°C
Average Humidity (Range)	49.9 (37.6-52.8)	% RH

Note: Conditioning air is passed through both particulate and activated charcoal filtration to remove background VOCs.

Table 4: Test chamber background VOC concentrations in µg m⁻³.

COMPOUND	CAS No.	C ₁₀
Formaldehyde	50-00-0	1.1
TVOC	-	18.9

Table 5: Test chamber TVOC and formaldehyde concentrations in µg m⁻³.

COMPOUND	CAS No.	264 H	288 H	336 H
Formaldehyde	50-00-0	< 2.0	< 2.0	< 2.0
TVOC	-	99.6	84.6	83.6

Table 6: Test chamber TVOC and formaldehyde emission factors in µg m⁻² h⁻¹.

COMPOUND	CAS No.	264 H	288 H	336 H
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Formaldehyde	50-00-0	< 1.2	< 1.2	< 1.2
TVOC	-	108	87.8	86.4

Individual emitted VOCs identified above the lower limits of quantitation are listed in Table 5; VOCs which are listed on chemical of concern lists or have CRELs are indicated.

The measured chamber concentrations and corresponding emission factors of identified individual VOCs and TVOCs are listed in Table 6.

In Tables 4, 6 and 7, emission factors were calculated using equation 3.1 in CDPH Standard Method V1.2:

$$EF_{Ai} = \frac{Q \times (C_{it} - C_{i0})}{A_c}$$

The inlet flow rate, Q ($\text{m}^3 \text{h}^{-1}$), is the measured flow rate of air into the chamber. The chamber concentration, C_{it} ($\mu\text{g m}^{-3}$), is the concentration of a target VOC_i, formaldehyde and other carbonyl compounds measured at time t . The chamber background concentration, C_{i0} ($\mu\text{g m}^{-3}$), is the corresponding concentration measured with the chamber operating without a test specimen. The exposed surface area of the test specimen in the chamber, A_c (m^2), is determined from the measurements made at the time of specimen preparation.

Table 7: VOCs detected above lower limits of quantitation in air samples at 336 hours.

VOC	CAS No.	SURROGATE ¹	CREL ² ($\mu\text{g m}^{-3}$)	CARB TAC ³	PROP 65 LIST ⁴
Butylated Hydroxytoluene*	128-37-0	Yes	-	No	No
Silanol Compound	-	Yes	n/a	n/a	n/a

¹Indicates which non-listed VOCs were quantified using surrogate compounds, all other compounds were quantified using pure compounds.

²Chronic Reference Exposure Level (CREL) as defined by California Office of Environmental Health Hazard Assessment.

³Substance is listed on California Air Resource Board's (CARB) Toxic Air Contaminant (TAC) identification list.

⁴Substance known to the state of California to cause cancer or reproductive toxicity according to California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).

*Compound is likely from the adhesive tape used to secure the sample to the stainless-steel plate and not the actual sample itself.

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Table 8: Measured chamber concentrations and corresponding emission factors of individual VOCs listed in Table 4-1 of CDPH 01350 V1.2. at 336 hours.

VOC	CAS No.	CHAMBER CONCENTRATION ($\mu\text{g m}^{-3}$)	EMISSION FACTOR ($\mu\text{g m}^{-2} \text{h}^{-1}$)
Formaldehyde	50-00-0	< 2.0	< 1.2
Acetaldehyde	75-07-0	< 3.9	< 2.9
Vinyl acetate	108-05-4	< 0.3	< 0.4
Epichlorohydrin	106-89-8	< 0.3	< 0.4
Ethanol, 2-methoxy-, acetate	110-49-6	< 0.9	< 1.2
Isopropyl Alcohol	67-63-0	< 2.7	< 3.6
Ethene, 1,1-dichloro-	75-35-4	< 0.4	< 0.6
Methylene chloride	75-09-2	< 0.4	< 0.5
Carbon disulfide	75-15-0	< 0.3	< 0.4
Methyl tert-butyl ether	1634-04-4	< 0.3	< 0.4
n-Hexane	110-54-3	< 0.3	< 0.3
Trichloromethane (Chloroform)	67-66-3	< 0.3	< 0.4
Ethanol, 2-methoxy-	109-86-4	< 0.3	< 0.3
Ethane, 1,1,1-trichloro-	71-55-6	< 0.3	< 0.3
Benzene	71-43-2	< 0.3	< 0.3
Carbon Tetrachloride	56-23-5	< 0.3	< 0.3
2-Propanol, 1-methoxy-	107-98-2	< 20.0	< 26.7
Ethylene glycol	107-21-1	< 0.3	< 0.3
Trichloroethylene	79-01-6	< 0.3	< 0.3
1,4-Dioxane	123-91-1	< 0.3	< 0.3
Ethanol, 2-ethoxy-	110-80-5	< 0.3	< 0.3
Toluene	108-88-3	< 1.8	< 2.4
Formamide, N,N-dimethyl-	68-12-2	< 0.3	< 0.3
Tetrachloroethylene	127-18-4	< 0.3	< 0.3
Benzene, chloro-	108-90-7	< 0.3	< 0.3
Ethylbenzene	100-41-4	< 2.0	< 2.6
Xylene (-m, -p, & -o)	108-38-3, 95-47-6, 106-42-3	< 0.3	< 0.3
Styrene	100-42-5	< 0.3	< 0.4
2-Ethoxyethyl acetate	111-15-9	< 0.3	< 0.5
Phenol	108-95-2	< 0.6	< 0.8
Benzene, 1,4-dichloro-	106-46-7	< 0.5	< 0.6
Isophorone	78-59-1	< 0.5	< 0.7
Naphthalene	91-20-3	< 0.3	< 0.4

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Table 9: Measured chamber concentrations and corresponding emission factors of identified non-listed individual VOCs and TVOC at 336 hours.

VOC	CAS No.	CHAMBER CONCENTRATION ($\mu\text{g m}^{-3}$)	EMISSION FACTOR ($\mu\text{g m}^{-2} \text{h}^{-1}$)
Butylated Hydroxytoluene	128-37-0	27.1	36.1
Silanol Compound	-	2.1	2.8
TVOC	-	83.6	86.4

Exposure Scenario Modeling and Evaluation:

Estimated building concentrations for the listed scenarios were calculated using equation 3.2a of CDPH Standard Method V1.2:

$$C_{Bi} = \frac{EF_{Ai} \times A_B}{Q_B}$$

The area specific emission rate EF_A at 336 hours (14 days) total exposure time is multiplied by the ratio of the exposed surface area of the installed material in the building, A_B (m^2), to the flow rate of outside ventilation air, Q_B ($\text{m}^3 \text{h}^{-1}$).

The modeling parameters used for the given scenarios are listed in Table 8. The modeled concentrations of identified individual VOCs are listed in Tables 9 & 10. Whether the modeled concentrations meet the maximum allowable concentration requirements specified in Table 4.1 of CDPH Standard Method V1.2 are also indicated.

Table 10: Standard modeling parameters for wallcoverings and ceiling.

PARAMETER	SYMBOL	VALUE	UNITS
Exposed Surface Area Installed in <i>Private Office (PO)</i>	A_B	44.5	m^2
Air flow rate of <i>Private Office (PO)</i>	Q_B	20.7	$\text{m}^3 \text{h}^{-1}$
Exposed Surface Area Installed in <i>Classroom (SC)</i>	A_B	184	m^2
Air flow rate of <i>Classroom (SC)</i>	Q_B	191	$\text{m}^3 \text{h}^{-1}$
Exposed Surface Area Installed in <i>Residence (R)</i>	A_B	779	m^2
Air flow rate of <i>Residence (R)</i>	Q_B	127	$\text{m}^3 \text{h}^{-1}$

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Table 11: Modeled concentrations of individual VOCs specified in Table 4-1 of CDPH 01350 V1.2.

VOC	CAS NO.	MODELED CONCENTRATION ($\mu\text{g m}^{-3}$)			CONC. LIMIT ($\mu\text{g m}^{-3}$)	RESULT Pass (P) /Fail (F)		
		PO	SC	R		PO	SC	R
Formaldehyde	50-00-0	< 5.7	< 2.6	< 16.4*	9	P	P	P
Acetaldehyde	75-07-0	< 6.1	< 2.7	< 17.5	70	P	P	P
Vinyl acetate	108-05-4	< 0.9	< 0.4	< 2.4	100	P	P	P
Epichlorohydrin	106-89-8	< 0.8	< 0.4	< 2.3*	1.5	P	P	P
Ethanol, 2-methoxy-, acetate	110-49-6	< 2.6	< 1.2	< 7.5	45	P	P	P
Isopropyl Alcohol	67-63-0	< 7.7	< 3.5	< 22.1	3,500	P	P	P
Ethene, 1,1-dichloro-	75-35-4	< 1.3	< 0.6	< 3.6	35	P	P	P
Methylene chloride	75-09-2	< 1.2	< 0.5	< 3.3	200	P	P	P
Carbon disulfide	75-15-0	< 0.9	< 0.4	< 2.5	400	P	P	P
Methyl tert-butyl ether	1634-04-4	< 0.9	< 0.4	< 2.6	4,000	P	P	P
n-Hexane	110-54-3	< 0.7	< 0.3	< 2.0	3,500	P	P	P
Trichloromethane (Chloroform)	67-66-3	< 0.8	< 0.4	< 2.3	150	P	P	P
Ethanol, 2-methoxy-	109-86-4	< 0.7	< 0.3	< 2.0	30	P	P	P
Ethane, 1,1,1-trichloro-	71-55-6	< 0.7	< 0.3	< 2.0	500	P	P	P
Benzene	71-43-2	< 0.7	< 0.3	< 2.0*	1.5	P	P	P
Carbon Tetrachloride	56-23-5	< 0.7	< 0.3	< 2.0	20	P	P	P
2-Propanol, 1-methoxy-	107-98-2	< 57.4	< 25.7	< 164	3,500	P	P	P
Ethylene glycol	107-21-1	< 0.7	< 0.3	< 2.0	200	P	P	P
Trichloroethylene	79-01-6	< 0.7	< 0.3	< 2.0	300	P	P	P
1,4-Dioxane	123-91-1	< 0.7	< 0.3	< 2.0	1,500	P	P	P
Ethanol, 2-ethoxy-	110-80-5	< 0.7	< 0.3	< 2.0	35	P	P	P
Toluene	108-88-3	< 5.2	< 2.3	< 14.8	150	P	P	P
Formamide, N,N-dimethyl-	68-12-2	< 0.7	< 0.3	< 2.0	40	P	P	P
Tetrachloroethylene	127-18-4	< 0.7	< 0.3	< 2.0	17.5	P	P	P
Benzene, chloro-	108-90-7	< 0.7	< 0.3	< 2.0	500	P	P	P
Ethylbenzene	100-41-4	< 5.7	< 2.5	< 16.1	1,000	P	P	P
Xylene (-m, -p, & -o)	108-38-3, 95-47-6, 106-42-3	< 0.7	< 0.3	< 2.0	350	P	P	P
Styrene	100-42-5	< 0.9	< 0.4	< 2.7	450	P	P	P
2-Ethoxyethyl acetate	111-15-9	< 1.0	< 0.4	< 2.8	150	P	P	P
Phenol	108-95-2	< 1.7	< 0.8	< 5.0	100	P	P	P
Benzene, 1,4-dichloro-	106-46-7	< 1.4	< 0.6	< 4.0	400	P	P	P
Isophorone	78-59-1	< 1.5	< 0.7	< 4.2	1,000	P	P	P
Naphthalene	91-20-3	< 0.8	< 0.4	< 2.3	4.5	P	P	P

*Individual VOC of concern is below lower LOQ for modeled scenario.

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Table 12: Modeled concentrations of identified non-listed individual VOCs.

VOC	CAS NO.	MODELED CONCENTRATION ($\mu\text{g m}^{-3}$)		
		PO	SC	R
Butylated Hydroxytoluene	128-37-0	77.7	34.8	222
Silanol Compound	-	6.0	2.7	17.1
TVOC _{Toluene}	-	186	83.2	530

PHOTOGRAPHS:

Figure 1: Photograph of sample in test chamber.

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SECTION 4**FACILITIES AND EQUIPMENT:****GCMS**

INSTRUMENTATION USED:

Markes TD-100 Thermal
Desorption
Agilent 7890A GC
Agilent 5975C MS

COLUMN USED:

AGILENT HP-5MS (GC)

HPLC

INSTRUMENTATION USED:

Agilent 1260 Infinity Series

COLUMN USED:

Poroshell 120 EC-C18

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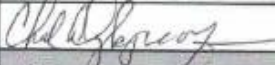
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SECTION 5

CHAIN OF CUSTODY

	Ship To: Attn: VOC Laboratory 4700 Broadmoor Ave SE Suite 200 Kentwood, MI 49512 Phone: 616-656-7401	Chain of Custody for Chemical Testing Intertek Quotation Number: Purchase Order (enter Company and Number):		
Customer Information Company: BARESCUE LLC Street Address: 21925 FIELD PARKWAY SUITE 240 City/State/Postal code: DEER PARK, IL 60010 Country: USA Contact Name & Title (for reporting): CHAD DYKGRAAF - PROJECT MANAGER Contact Phone/Fax Numbers: 616 821 5944 Contact E-mail Address: chad@barescue.com Financially Responsible Co.: BARESCUE LLC		Shipping Details Packed & Shipped By: Shipping Date: Carrier/Airbill Number:		
		Requested Testing Test to be performed:		
		Customer Request for Certification Clean Air™ Certification: <input checked="" type="checkbox"/> YES		
Manufacturer Information (If Different) Company: City/State/Country: Contact Name/Title: Phone Number/E-mail Address:		Special Customer Instructions		
Sample Details Product Commercial Name*: ZINTRA Product Commercial Part No.(if not part of the name)*: Manufacturer Sample Tracking ID: Date Manufactured*: Product Category & Use*: Sample Construction Materials*: 1/2" PET Plant Name & Location*: Collection Location within Plant: Date & Time Collected*: Number of Sample Pieces*: 4 Sample Collected by*: Phone/Fax Numbers*: E-mail Address*:		Customer Authorizes Laboratory to Submit Copies of Test Reports To: Contact: CHAD DYKGRAAF Email Address: chad@barescue.com Organization: BARESCUE LLC Contact: Email Address: Organization:		
		Intertek Use Only Condition of Shipping Package: Good condition Condition of Sample: okay condition - not wrapped in foil Sample ID: GRR2207130006 GIN: G105108702 *Indicates required field		
Sample Handling*				
	Printed Name*	Signature*	Date*	Company*
Relinquished By:	CHAD DYKGRAAF		7/7/22	BARESCUE LLC
Received by:	Mark Lockwood	Mark Lockwood	30-August-2022	Intertek