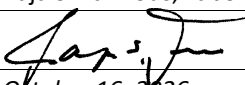


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VOC Emissions from Building Products

Customer & Building Product Sample Information

Report Certification	
Report number	1464-003-01A-Oct1626
Report date	October 16, 2026
Certified by (Name/Title)	Raja S. Tannous, Laboratory Director
Signature	
Date	October 16, 2026

Standards	
Test method	CDPH/EHLB/Standard Method V1.2 (Sect. 01350)
Acceptance criteria	CDPH/EHLB/Standard Method V1.2
Modeling scenario(s)	CDPH/EHLB/Standard Method V1.2 Standard Classroom & Office
Product type	Floor Coatings or Adhesives

Customer Information	
Manufacturer or organization	Resinwerks, LLC
City/State/Country	Denver, CO USA
Contact name/Title	Taylor Gimbert, Director of Operations
Phone number	720-484-5160

Product Sample Information*	
Manufacturer (if not customer)	Resinwerks, LLC
Product name / Number	Velara™ Biopolymer Resin - Part A and Part B / 240-A, 240-B
Product CSI category	Flooring (09 60 00)
Customer sample ID	Part A= 240-97864A, Part B= 240-97864B
Manufacturing location	Fremont, IN
Date sample manufactured	July 30, 2026
Date sample collected	September 9, 2026
Date sample shipped	September 10, 2026
Date sample received by lab	September 18, 2026
Condition of received sample	No observed problems
Lab sample tracking number	1464-003-01A
Conditioning start date & duration	September 25, 2026; 10 days
Chamber test start date & duration	October 5, 2026; 4 days (96 hours)
Total test start date & duration	September 25, 2026; 14 days (336 hours)

*Chain-of-custody (COC) form for product sample is attached to this report

Conformity Assessment – CDPH VOC Concentration Criteria

VOC Emission Test Results – The product sample was tested for emissions of VOCs following California Department of Public Health CDPH/EHLB/Standard Method Version 1.2, 2017. The chamber test results were modeled according to one or more scenarios defined in CDPH Standard Method V1.2. To assess compliance, the modeled indoor VOC concentrations were compared to the acceptance criteria defined in CDPH Standard Method V1.2. The modeling scenario(s) are detailed in Table 3, and the predicted indoor VOC concentrations at 336 hours are given in Table 6. The allowable concentrations used as acceptance criteria are reproduced in Appendix B. Table 1 summarizes the pass/fail results based on the predicted indoor air concentrations of individual VOCs of concern in the modeled scenario(s).

Decision Rule – The decision rule is defined in CDPH Standard Method V1.2. Compliance with the standard is determined based on the estimated indoor air concentrations of individual VOCs at 336 hours for the modeling scenario(s) without consideration of measurement uncertainty.

TVOC Concentration Range – USGBC's LEED v4 rating systems for buildings include a requirement for reporting of the predicted TVOC concentration in one of three range categories: $\leq 0.5 \text{ mg/m}^3$, >0.5 to 4.9 mg/m^3 , or $\geq 5.0 \text{ mg/m}^3$. Table 1 includes the TVOC concentration range in the modeled scenario(s).

Table 1. Pass/Fail results based on the test method and identified modeling scenarios. Only detected individual VOCs with defined acceptance criteria are listed. The TVOC concentration range is also shown

Chemical	CAS No	Allowable Concentration ($\mu\text{g}/\text{m}^3$)	Predicted Concentration (Pass/Fail)	
			Classroom	Office
No formaldehyde or other target CREL VOCs were detected	--	--	Pass	Pass
TVOC ^a	--	--	$\leq 0.5 \text{ mg}/\text{m}^3$	$\leq 0.5 \text{ mg}/\text{m}^3$

^a Reporting of TVOC range is for information only; TVOC is not a Pass/Fail criterion

Test Method for Building Product Samples

Test Specimen Preparation – A customer-provided, pre-measured, ready-to-mix kit of resin-based floor coating was mixed at the laboratory. Once a homogeneous mixture was obtained, the material was immediately applied to an aluminum tray using a paintbrush. A total of 117.69 g of material was applied, based on the manufacturer's recommended coverage at a wet film thickness of 80 mils. The exposed area was calculated based on the coated surface dimensions of 22.9 cm × 15.2 cm. Photographs of the tested specimen are provided later in this report. The test results presented herein are specific to this item.

Test Protocol Summary* – This VOC emission test was conducted following California Department of Public Health CDPH/EHLB/Standard Method Version 1.2, 2017. This version of the standard is identical to CDPH/EHLB/Standard Method V1.1, 2010, except that the allowable benzene concentration is lower. Note: this standard derives from California architectural Specification 01350 and is frequently referred to as "Section 01350." The chamber test prescribed in the standard follows the guidance of [ASTM Standard Guide D5116](#). Chemical sampling and analyses were performed according to [U.S. EPA Compendium Method TO-17](#) and [ASTM Standard Method D5197](#). The product specimen was prepared from the supplied product sample and placed directly into the conditioning environment, where it was maintained under controlled conditions of air flow rate, temperature, and relative humidity for 10 days. At the end of this period, the specimen was transferred directly to a small-scale chamber. The chamber conditions for the 96-hour test period are summarized in Table 2. Air samples were collected from the chamber at 24, 48, and 96 hours elapsed time. Samples for the analysis of individual VOCs and TVOC were collected on multisorbent tubes containing Tenax-TA backed by a carbonaceous sorbent. Samples for the analysis of low molecular weight aldehydes were collected on treated DNPH cartridges. VOC samples were analyzed by thermal desorption GC/MS. TVOC was calculated using toluene as the calibration reference. Individual VOCs (iVOCs) were quantified using multi-point calibration curves (4 or more points) prepared with pure standards unless otherwise noted. iVOCs without pure standards were quantified based on their total-ion-current responses using toluene as the calibration reference. Formaldehyde and acetaldehyde were analyzed by HPLC and quantified using multi-point calibration curves (4 or more points). The analytical instruments and their operating parameters are detailed in Appendix A.

Exception(s) and Deviation(s) – 1) For ASTM D5197 analysis of carbonyl compounds, DNPH cartridges were extracted into 2-mL volumetric vials instead of 5-mL volumetric flasks. This deviation has no impact on the results.

Measurement Uncertainty (MU) – Combined relative standard deviations (RSDs) were estimated using error propagation for measurements of area-specific emission rates of 35 iVOCs, as well as formaldehyde and acetaldehyde, in small- and mid-scale chambers. The estimated RSDs ranged from 5.3% to 34%, with median and mean values of 13% and 15%, respectively. The expanded measurement uncertainty is calculated as 2 x RSD.

Disclaimer – The sample was collected by either the customer or a third party. The results are specific to this test item as received from the customer.

Availability of Data – All data, including but not limited to raw instrument files, calibration files, and quality control checks used to generate the test results, will be made available to the customer upon request, subject to Berkeley Analytical's Services Agreement.

*All standards identified in this section are included in Berkeley Analytical's scope of ISO/IEC17025 accreditation, Testing Laboratory TL-383, International Accreditation Service, www.iasonline.org

Test Method for Building Product Samples, Continued

Table 2. Chamber conditions for the test period

Parameter	Symbol	Units	Value
Tested specimen exposed area	A_s	m^2	0.035
Chamber volume	V_c	m^3	0.067
Loading ratio	L	m^2/m^3	0.52
Avg. Inlet gas flow rate & Range	Q_c	m^3/h	0.067 (0.066-0.068)
Avg. Temperature & Range		$^{\circ}C$	23.6 (22-24)
Avg. Relative humidity & Range		%	49 (45-55)
Duration		h	96

Modeling Parameters for Building Products

Modeling Parameters – CDPH/EHLB/Standard Method Version 1.2 describes the modeling procedures and parameters for estimating the impact of VOC emissions from a building product on indoor air concentrations in a standard classroom and a standard office space. The dimensions and ventilation of the spaces and the exposed surface areas of major materials are prescribed. The modeling scenario(s) and parameters applicable to this test are listed in Table 3.

Table 3. Parameters used for estimating VOC air concentrations at 336 hours for the modeling scenarios

Parameter	Symbol	Units	Value	
			Classroom	Office
Product exposed area	A_{PB}	m^2	89.2	11.1
Building volume	V_B	m^3	231	30.6
Floor/Ceiling Area	A_B	m^2	89.2	11.15
Ceiling height	H_B	m	2.59	2.74
Outdoor air (OA) flow rate	Q_B	m^3/h	191	20.7
Area-specific air flow rate	q_A	m^3/m^2-h	2.14	1.86

VOC Emission Test Results

Chamber Background Concentrations – Background concentrations measured at time zero are reported in Table 4. The background concentrations of TVOC, formaldehyde, acetaldehyde, and reported iVOCs are listed.

Table 4. Chamber background VOC concentrations at time zero

Chemical/Chemical Group	CAS No	Chamber Conc ($\mu\text{g}/\text{m}^3$)
Acetaldehyde	75-07-0	LQ
Formaldehyde	50-00-0	LQ
TVOC	--	LQ

Emitted VOCs – Individual VOCs (iVOCs) detected in the test and present above the lower limits of quantitation in chamber air are reported in Table 5. All iVOCs with Chronic Reference Exposure Limits (CRELs) and/or on other lists of toxicants of concern are listed first. Next, all iVOCs with pure standard calibrations are listed. Additionally, iVOCs quantified using toluene as the reference standard are listed; the identifications of these compounds are considered tentative. If fewer than 10 iVOCs are reported, this indicates that fewer than 10 chemicals met these criteria.

Table 5. Listed and abundant iVOCs detected above the lower limits of quantitation in the 96-hour air sample

Chemical	CAS No	Surrogate?*	CREL ($\mu\text{g}/\text{m}^3$)	CARB TAC Category	Prop 65 List?
1,2,4-Trimethylbenzene	95-63-6			T-IVb	
n-Nonane	111-84-2				
n-Decane	124-18-5				
n-Undecane	1120-21-4				
Butylated hydroxytoluene	128-37-0				
4-Heptanone, 2,6-dimethyl-	108-83-8	Yes			
branched alkane (RT: 15.93 min)	--	Yes			
2-Heptanone, 4,6-dimethyl-	19549-80-5	Yes			
4-Heptanol, 2,6-dimethyl-	108-82-7	Yes			
Sum of aliphatic HCs (RT: 16.70-20.95 min)	--	Yes			

*"Yes" response indicates iVOC quantified using toluene as the calibration reference; all other iVOCs are quantified using pure standards

VOC Emission Test Results, Continued

VOC Emission Factors and Estimated Indoor Air Concentrations – The 96-hour chamber sample was analyzed for iVOCs, including formaldehyde and acetaldehyde. The emission factors for iVOCs presented in Table 6 were calculated based on the chamber parameters, the exposed area of the test specimen, and the measured 96-hour chamber concentrations corrected for any chamber background concentrations. The emission factors were used to predict the indoor air concentrations of iVOCs for the modeling scenario(s) applicable to this test, as shown in Table 3. See Equations for calculation methods.

Table 6. Measured chamber concentrations at 96 hours, calculated emission factors, and estimated indoor air concentrations of individual VOCs for the modeling scenarios

Chemical	Chamber Concentration ($\mu\text{g}/\text{m}^3$)	Emission Factor ($\mu\text{g}/\text{m}^2\text{-h}$)	Estimated Indoor Air Concentration ($\mu\text{g}/\text{m}^3$)	
			Classroom	Office
n-Nonane	9.3	18.0	8.4	9.7
n-Decane	40.9	78.8	36.8	42.3
4-Heptanone, 2,6-dimethyl-	122	235	109	126
1,2,4-Trimethylbenzene	3.7	7.1	3.3	3.8
branched alkane (RT: 15.93 min)	3.3	6.4	3.0	3.5
2-Heptanone, 4,6-dimethyl-	25.8	49.8	23.3	26.8
4-Heptanol, 2,6-dimethyl-	27.9	53.9	25.2	29.0
Sum of aliphatic HCs (RT: 16.70-20.95 min)	91.8	177	82.7	95.2
n-Undecane	3.0	5.8	2.7	3.1
Butylated hydroxytoluene	8.9	17.1	8.0	9.2

VOC Emission Test Results, Continued

Quality Measurements – Chamber samples collected at 24, 48, and 96 hours were analyzed for total VOCs (TVOC). Because the TVOC response per unit mass of a chemical is highly dependent upon the specific mixture of iVOCs, the measurement of TVOC is semi-quantitative. TVOC is primarily used as a quality measure to determine if the VOC emissions from a product remain relatively constant or generally decline over the test period. Some programs may require reporting of predicted indoor air TVOC concentrations or concentration ranges in mg/m^3 . TVOC emission factors and predicted TVOC concentrations are shown in Table 7. Additionally, aldehyde samples collected at 24, 48, and 96 hours were analyzed for formaldehyde as another quality measure. Formaldehyde emission factors are listed in Table 8. Product claims related to formaldehyde content may, in part, be based on these formaldehyde emission factors.

Table 7. TVOC chamber concentrations at 24, 48, and 96 hours with corresponding emission factors and predicted indoor air concentrations (mg/m^3)

Elapsed Time (h)	Chamber Concentration ($\mu\text{g}/\text{m}^3$)	Emission Factor ($\mu\text{g}/\text{m}^2\text{-h}$)	Estimated Indoor Air Concentration (mg/m^3)	
			Classroom	Office
24	282	543	0.254	0.292
48	313	604	0.282	0.325
96	323	622	0.291	0.335

Table 8. Formaldehyde chamber concentrations at 24, 48, and 96 hours with corresponding emission factors

Elapsed Time (h)	Chamber Concentration ($\mu\text{g}/\text{m}^3$)	Emission Factor ($\mu\text{g}/\text{m}^2\text{-h}$)
24	LQ	LQ
48	LQ	LQ
96	LQ	LQ

Photographs of Tested Product Specimen

Photo Documentation – The product sample specimen is photographed immediately following specimen preparation and prior to initiating the conditioning period. Typically, the top and bottom faces of the specimen are photographed. Bottom faces may show a stainless-steel plate or other substrate if prescribed by the standard.



Definitions, Equations, and Comments

Table 9. Definitions of parameters

Parameter/Value	Definition
CARB TAC	Toxic Air Contaminant (TAC) on the California Air Resources Board list, with the toxic category indicated
CAS No.	Chemical Abstracts Service registry number, providing a unique chemical ID
Chamber Concentration	Measured chamber VOC concentration at time point minus any analytical blank or background concentration for the empty chamber measured prior to the test. The lower limit of quantitation (LQ) or reporting limit for individual VOCs is 2 µg/m ³ unless otherwise noted
Indoor Air Concentration	Estimated indoor air concentration in a standard modeled environment calculated from the emission factors from test results and the modeling parameters in Table 3 using the equations given below
CREL	Chronic non-cancer Reference Exposure Level established by Cal/EPA OEHHA (http://www.OEHHA.ca.gov/air/allrels.html)
Emission Factor	Mass of compound emitted per unit area per hour (calculation shown below). Reporting limits for emission factors are established by the LQ or the reporting limit for the chamber concentration and specimen area tested
Formaldehyde & acetaldehyde	Volatile aldehydes quantified by HPLC following ASTM Standard Method D5197. LQs for formaldehyde and acetaldehyde are 1.1 µg/m ³ and 1.5 µg/m ³ , respectively
Individual VOCs	Quantified by thermal desorption GC/MS following EPA Method TO-17. Compounds are quantified using multi-point calibrations prepared with pure chemicals unless otherwise indicated. VOCs with chronic RELs are listed first, followed by other TAC and Prop. 65 compounds. Additional abundant VOCs at or above the reporting limit of 2 µg/m ³ are listed last
LQ	Indicates calculated value is below its lower limit of quantitation
Prop 65 list	“Yes” indicates the compound is a chemical known to cause cancer or reproductive toxicity according to the California Safe Drinking Water Toxic Enforcement Act of 1986 (Proposition 65)
TVOC	Total Volatile Organic Compounds eluting over a retention time range bounded by n-pentane and n-heptadecane and quantified by GC/MS TIC method using toluene as the calibration reference. The LQ for TVOC is 20 µg/m ³
“na”	Not applicable
“<”	Less than value established by LQ

Equations Used in Calculations – An emission factor (EF) in µg/m²-h for a chemical in a chamber test of a building product sample is calculated using Equation 1:

$$EF = (Q_c (C - C_o)) / A_s \quad (1)$$

where Q_c is the chamber inlet air flow rate (m³/h), C is the VOC chamber concentration (µg/m³), C_o is the corresponding chamber background VOC concentration (µg/m³), and A_s is the tested specimen exposed area (m²).

Definitions, Equations, and Comments, Continued

The indoor air concentration (C_B) for the modeled space in $\mu\text{g}/\text{m}^3$ is estimated using Equation 2 and the parameters defined in Table 3:

$$C_B = (EF \times A_{P_B}) / Q_B \quad (2)$$

where A_{P_B} is the exposed area of the product in the building (m^2), and Q_B is the outside air flow rate (m^3/h).

Comments: None.

END OF REPORT

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Appendix A Analytical Instruments & Operating Parameters

Table A1. Description of analytical instrument components

Component	Description
HPLC	1260 Infinity Quaternary LC, G1314F VW Detector, Agilent
Analytical column	Poroshell 120 EC-C18, Agilent
Column dimensions	2.1 mm x 100 mm
Thermal desorber	Unity / TD100, Markes International, Ltd.
Gas chromatograph	Model 7890A, Agilent
Analytical column	DB-624, J&W Scientific
Column dimensions	1 µm film, 0.18 mm ID, 20 m
Mass spectrometer	Model 5975C MSD, Agilent

Table A2. HPLC operating parameters for the analysis of formaldehyde and acetaldehyde

Parameter	Value
Solvent A	65/35% H ₂ O/Acetonitrile
Solvent B	100% Acetonitrile
Flow rate	0.3 mL/min
End time	11 min
Detector wavelength	360 nm

Table A3. Thermal desorption GC/MS parameters used for the analysis of iVOCs and TVOC

Parameter	Value
Thermal desorption	
Tube desorb temperature	300 °C
Trap temperature	-5 °C
Trap desorb temperature	300 °C
Trap desorb split ratio	10:1
Gas chromatograph	
Initial temperature	40 °C
Initial temperature time	6.0 min
Final temperature	300 °C
Final temperature time	2 min
Mass spectrometer	
Low scan mass, m/z	30 amu
High scan mass, m/z	450 amu
Scan rate	3.42 Hz

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Appendix B
Target CREL VOCs and Their Maximum Allowable Concentrations
Copied from CDPH/EHLB/Standard Method Version 1.2, 2017, Table 4-1

No.	Compound Name	CAS No.	Allowable Conc. ($\mu\text{g}/\text{m}^3$)
1	Acetaldehyde	75-07-0	70
2	Benzene	71-43-2	1.5
3	Carbon disulfide	75-15-0	400
4	Carbon tetrachloride	56-23-5	20
5	Chlorobenzene	108-90-7	500
6	Chloroform	67-66-3	150
7	Dichlorobenzene (1,4-)	106-46-7	400
8	Dichloroethylene (1,1)	75-35-4	35
9	Dimethylformamide (N,N-)	68-12-2	40
10	Dioxane (1,4-)	123-91-1	1,500
11	Epichlorohydrin	106-89-8	1.5
12	Ethylbenzene	100-41-4	1,000
13	Ethylene glycol	107-21-1	200
14	Ethylene glycol monoethyl ether	110-80-5	35
15	Ethylene glycol monoethyl ether acetate	111-15-9	150
16	Ethylene glycol monomethyl ether	109-86-4	30
17	Ethylene glycol monomethyl ether acetate	110-49-6	45
18	Formaldehyde	50-00-0	9*
19	Hexane (n-)	110-54-3	3,500
20	Isophorone	78-59-1	1,000
21	Isopropanol	67-63-0	3,500
22	Methyl chloroform	71-55-6	500
23	Methylene chloride	75-09-2	200
24	Methyl t-butyl ether	1634-04-4	4,000
25	Naphthalene	91-20-3	4.5
26	Phenol	108-95-2	100
27	Propylene glycol monomethyl ether	107-98-2	3,500
28	Styrene	100-42-5	450
29	Tetrachloroethylene	127-18-4	17.5
30	Toluene	108-88-3	150
31	Trichloroethylene	79-01-6	300
32	Vinyl acetate	108-05-4	100
33-35	Xylenes, technical mixture (m-, o-, and p- xylene combined)	108-38-3, 95-47-6, 106-42-3	350

*All maximum allowable concentrations are one-half the corresponding CREL adopted by Cal/EPA OEHHA with the exception of formaldehyde, for which the full CREL of $9 \mu\text{g}/\text{m}^3$ is allowed.



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Customer Information*

Company: Resinwerks LLC
Street Address: 7205 Gilpin Way Ste 200
City/State/Zip (postal code): Denver, CO 80229
Country: United States
Contact Name & Title (for reporting): Taylor Gimbert, Director of Operations
Contact Phone Number: 720-484-5160
Contact Email Address: taylor@resinwerks.com
Financially Responsible Co. (if different):

Manufacturer Information (if different from customer)

Company: Resinwerks LLC
City/State/Country: Fremont, IN USA
Contact Name/Title: Mike Williams
Phone Number/Email Address: 260-668-6448

Sample Details

Product Commercial Name*: Velara Biopolymer Part A and Part B
Product Commercial Part No. (if not part of name)*: 240-A, 240-B
Product Type or Category & Use: Liquid Floor Coating
Sample Construction Material: Biopolymer
Sample Tracking ID: Part-A: 240-97864A, 240-97864B
Date Manufactured*: Part A= 7/30/26, Part B= 7/30/26
Plant Name & Location*: Resinwerks, Fremont IN 46737
Date & Time Collected*: 9/9/26 2pm
Collection Location within Plant:
Sample Collected by*: Mike Williams
Phone Number*: 260-668-6448
E-mail Address*: mike@resinwerks.com

Shipping Details*

Packed & Shipped By: Mike Williams
Shipping Date: 9/10/26
Carrier/Airbill Number: UPS 1ZRI18 598 03 0493 5776

Asterisk (*) information MUST be provided for this section or item for certification and compliance tests.

Sample Handling

Relinquished By*	Received By*	Signature*	Date*	Company*
Michael Williams	F. MASRI	Michael Williams	9/10/2026	Resinwerks LLC
			9/18/26	BWA

Chain of Custody for Building Product/ Material VOC Emission Test

A separate COC must be completed for EACH product/material sample.
A link to Berkeley Analytical's Services Agreement is included in this workbook. By submitting samples, customer acknowledges and accepts these terms & conditions unless a prior contract is in effect.

Quotation Information

Berkeley Analytical Quotation Number*:	26082603
Purchase Order (enter company & number):	Resinwerks PO-97864

Requested Testing (select from dropdown lists)

Test to be performed	CDPH Std. Method V1.2
Test schedule (screening only)	
Target chemicals & groups (screening only)	
Test results application (optional)	ClearChem declaration

Customer Instructions for Sample Preparation, Test Type, Schedule, etc.

Velara Biopolymer
Mix by weight 77:23
240-A – 77 parts
240-B – 23 parts

Customer Authorizes Laboratory to Submit Copies of Test Report to:

Contact/Email Address:
Organization:
Contact/E-mail Address:
Organization:

For Berkeley Analytical Use:

Report ID
Billing Reference

For Berkeley Analytical Use Only

Condition of Shipping Package: OK
Condition of Sample: OK
Lab Tracking Number: 1464-003-01A