# Self-Declared Certificate of Product Conformity VOC Emissions

## Company Information

| | |
|---|---|
| Company Name: | **CTS Cement Manufacturing Corporation \| Rapid Set** |
| Contact Information: | **info@ctscement.com; 800-929-3030** |
| Website: | **www.ctscement.com** |

## Product Information

| | |
|---|---|
| Product Name: | **Rapid Set WunderFixx®** |
| Product Number: | **Rapid Set WunderFixx®** |
| Product Line: | **Rapid Set WunderFixx®** |
| Product Category: | **Concrete Finishes** |

## Exclusions

| | |
|---|---|
| Exclusions: | **None** |

## VOC Content

| | |
|---|---|
| Regulatory VOC Content g/L: | **0** |
| Regulation: | **SCAQMD Rule 1113** |
| Category: | **Trowel Applied Coatings** |
| VOC Content test or determination method: | **Calculated from formulation** |
| Exempt compounds >1% weight by mass of product: | **None** |
| Does product contain methylene chloride or perchloroethylene?: | **No** |

## VOC Emissions

| | |
|---|---|
| Test Standard: | **CDPH Standard Method V1.2** |
| Acceptance Criteria: | **CDPH Standard Method V1.2** |
| Use scenario(s) Product type: | **Wall Paint & Wall Coverings** |
| Building Type: | **Classroom+Office** |
| Product coverage g/m²: | **19490** |
| TVOC concentration at 14-days: | **Less or equal to 0.5 mg/m3** |
| Direct or extended claim: | **Direct** |

## Compliance Testing

| | |
|---|---|
| ISO/IEC 17025 accredited third-party laboratory: | **Berkeley Analytical, IAS TL-383** |
| Test start date: | **03/21/2025** |
| Laboratory certificate number: | **250410-02** |

## Extended Claim for Co-product

| | |
|---|---|
| Name of compliance tested product: | **Not Applicable** |
| Number: | **Not Applicable** |
| Was listed product screening-level tested for VOC emissions?: | **No / Not Applicable** |
| Basis for extension of claim from compliant product to co-product: | **Not Applicable** |
| Brief description of procedures used to ensure product is represented by compliance test results: | **Not Applicable** |

## Quality Control

| | |
|---|---|
| Company maintains internal quality control program to ensure manufactured units are produced consistently and meet the requirements and acceptance criteria of listed standard(s): | **Yes** |
| Tested product sample was selected from typical production and is representative of commercial product. Where there are expected variations, sample was selected from production lot or group expected to give worst-case results: | **Yes** |
| If claim is for product other than product that was sampled and compliance tested, company maintains record of procedures used for extending claim in form of test results, calculations, formulations, or other information: | **Not Applicable** |

## Self-Declaration Signature

| | |
|---|---|
| I affirm that I am authorized to make claims established in this declaration: | **Yes** |
| I certify that the information in this declaration is true and correct: | **Yes** |
| Date: | **05/12/2025** |
| Name of company representative: | **Grant Kao** |
| Title: | **VP Product Strategy and Compliance** |
| Signature: | **Grant Kao** |

**This ClearChem template is a standardized reporting form used by companies to make self-declared claims about the environmental performance of their products. Only companies that have entered into a binding Implementation Agreement with Berkeley Analytical may use this form.**

**DISCLAIMER: THIS SELF-DECLARATION OF CONFORMITY (“SELF-DECLARATION”) IS A STATEMENT MADE BY THE COMPANY AND ALL DECLERATIONS MADE HEREIN ARE THE SOLE RESPONSIBILITY OF THE COMPANY. BERKELEY ANALYTICAL ASSOCIATES, LLC (“BKA”) SHALL HAVE NO LIABILITY FOR ANY STATEMENTS MADE IN THIS SELF-DECLARATION. ANY TEST RESULTS FURNISHED BY BKA TO COMPANY ARE LIMITED TO THE SAMPLE OF THE PRODUCT IDENTIFIED IN THIS DECLARATION, AND BKA IS NOT RESPONSIBLE FOR ANY COMPANY CLAIMS REGARDING A PRODUCT OR PRODUCTS ENTERED INTO COMMERCE THAT MAY BE BASED ON BKA TESTING. BKA’S TESTING DOES NOT CONSTITUTE AN ENDORESMENT OF ANY PRODUCT OF THE COMPANY. BKA HAS NO LIABILITY FOR THE PERFORMANCE, QUALITY, OR CONFORMANCE WITH THE REFERENCE STANDARD(S) OF ANY PRODUCT DECLARED TO BE CONFORMING TO SUCH STANDARD(S). BKA MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS REGARDING THE USABILITY, PUBLIC HEALTH, AND MEDICAL, TOXICOLOGICAL, OR ENVIRONMENTAL IMPACT OF THE COMPANY’S PRODUCT OR SUCH PRODUCT’S COMPLIANCE WITH ANY APPLICABLE STANDARDS, SPECIFICATIONS, REQUIREMENTS, LAWS, OR REGULATIONS. BKA PROVIDES THE SELF-DECLARATION TEMPLATE"AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO,THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE. BKA SHALL NOT INCUR ANY LIABILITY FOR ANY DAMAGES, INCLUDING, BUT NOT LIMITED TO, DIRECT, INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF, RESULTING FROM, OR IN ANY WAY CONNECTED TO THE USE OF ANY PRODUCT, WHETHER OR NOT BASED UPON WARRANTY, CONTRACT, TORT, OR OTHERWISE; WHETHER OR NOT INJURY WAS SUSTAINED BY PERSONS OR PROPERTY OR OTHERWISE; AND WHETHER OR NOT LOSS WAS SUSTAINED FROM, OR AROSE OUT OF, THE RESULTS OF THE COMPANY’S PRODUCT, OR ANY SERVICES THAT MAY BE PROVIDED BY BKA. ALL INQUIRIES CONCERNING THIS SELF-DECLARATION SHOULD BE DIRECTED TO THE COMPANY.**

# COMPLIANCE TESTED by berkeley analytical

## VOC Emission Test Certificate

**Product Name: Rapid Set WunderFixx®**

| **Product Sample Information** | | **Certificate Information** | |
|---|---|---|---|
| Company: | CTS Cement Manufacturing Corporation | Certificate No: | 250410-02 |
| Company Website: | www.ctscement.com | Certified By: | |
| Product Type: | Floor Coatings - Concrete Smoothing | | Raja S. Tannous, Laboratory Director |
| Date Produced: | February 5, 2025 | Date: | April 10, 2025 |

**Reference Standard & Modeling Scenario:** California Department of Public Health CDPH/EHLB/Standard Method Version 1.2, 2017 (Emission testing method for CA Specification 01350)

**Acceptance Criteria and Results Demonstrating Compliance of Product Sample to Referenced Standard:**

| **Exposure Scenario[1]** | **Individual VOCs of Concern[2]** | | **Formaldehyde[3]** | | **TVOC[4]** |
|---|---|---|---|---|---|
| | **Criterion** | **Compliant?** | **Criterion** | **Compliant?** | **Range** |
| School Classroom | ≤½ Chronic REL | YES | ≤9.0 µg/m³ | YES | ≤ 0.5 mg/m³ |
| Private Office | ≤½ Chronic REL | YES | ≤9.0 µg/m³ | YES | ≤ 0.5 mg/m³ |

**Sample Coverage[5]:** 19,490 g/m²

1. Exposure scenarios & product quantities for classroom & office are defined in Tables 4-2 – 4-5 (CDPH Standard Method V1.2-2017)
2. Maximum allowable concentrations of individual target VOCs are specified in Table 4-1 (*ibid.*)
3. Maximum allowable formaldehyde concentration is ≤9 µg/m³, effective Jan 1, 2012; previous limit was ≤16.5 µg/m³ (*ibid.*)
4. Informative only; predicted TVOC Range in three categories: ≤0.5 mg/m³, >0.5 – 4.9 mg/m³, and ≥5.0 mg/m³
5. Informative and applicable only to tests of wet-applied products; grams of sample applied per square meter of substrate

**Standards & Codes Recognizing CDPH Standard Method V1.2 (partial list)**

- USGBC LEED Version 4/4.1, BD&C, ID&C, Residential BD&C Multifamily
- The WELL Building Standard, WELL v2, Feature X06
- ANSI/GBI 01-2019 Green Globes Assessment Protocol

**Narrative:** CTS Cement Manufacturing Corporation selected a sample representative of its Rapid Set WunderFixx®, a gray concrete smoothing compound product and submitted it on March 19, 2025 for testing. Berkeley Analytical measured and evaluated the emissions of VOCs from this sample following CDPH/EHLB/Standard Method V1.2-2017. The results of the test are presented in Berkeley Analytical report, 923-005-03A-Apr1025.

**Berkeley Analytical** is an independent testing laboratory specializing in the analysis of organic chemicals emitted by and contained in building products, finishes, furniture, and consumer products. We are an ISO/IEC 17025 accredited laboratory (IAS, TL-383); all standards used in performing this test are in Berkeley Analytical's scope of accreditation.

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# VOC Emissions from Building Products

## *Customer & Building Product Sample Information*

| **Report Certification** | |
|---|---|
| Report number | 923-005-03A-Apr1025 |
| Report date | April 10, 2025 |
| Certified by (Name/Title) | Raja S. Tannous, Laboratory Director |
| Signature | |
| Date | *April 11, 2025* |

| **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 | Concrete smoothing compound |

| **Customer Information** | |
|---|---|
| Manufacturer or organization | CTS Cement Manufacturing Corporation |
| City/State/Country | Garden Grove, CA USA |
| Contact name/Title | Grant Kao, VP Product Strategy & Compliance |
| Phone number | 714-793-1040 |

| **Product Sample Information*** | |
|---|---|
| Manufacturer (if not customer) | CTS Cement Manufacturing Corporation |
| Product name / Number | Rapid Set WunderFixx® |
| Product CSI category | Flooring (09 60 00) – Concrete Smoothing Compound |
| Customer sample ID | 530020550021 |
| Manufacturing location | Mo Plant, Mexico, Missouri |
| Date sample manufactured | February 5, 2025 |
| Date sample collected | March 4, 2025 |
| Date sample shipped | March 7, 2025 |
| Date sample received by lab | March 19, 2025 |
| Condition of received sample | No observed problems |
| Lab sample tracking number | **923-005-03A** |
| Conditioning start date & duration | March 21, 2025; 10 days |
| Chamber test start date & duration | March 31, 2025; 4 days (96 hours) |
| Total test start date & duration | March 21, 2025; 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 the predicted TVOC concentration in one of three range categories: ≤0.5 mg/m$^3$, >0.5 to 4.9 mg/m$^3$, or ≥5.0 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 (µg/m$^3$) | Predicted Concentration (Pass/Fail) | |
|---|---|---|---|---|
| | | | Classroom | Office |
| Formaldehyde | 50-00-0 | 9 | **Pass** | **Pass** |
| Acetaldehyde | 75-07-0 | 70 | **Pass** | **Pass** |
| Ethylene glycol | 107-21-1 | 200 | **Pass** | **Pass** |
| TVOC[a] | -- | -- | ≤ 0.5 mg/m$^3$ | ≤ 0.5 mg/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 test specimen was prepared in the laboratory following the mixing and application instructions provided by the customer. The process is detailed below:

1. Wunderfixx concrete smoothing compound was mixed with water at a ratio of 22.68 kg to 6.65 L. For this specimen, 1,069.80 g of the compound was combined with 323.87 g of water.
2. Once a homogeneous mixture was achieved, the material was poured into an aluminum tray to a depth of approximately 1.27 cm (1/2 inch). The exposed surface was 22.5 cm x 15.0 cm. The total weight of applied material was 657.77 g.

Photographs of the tested specimen are provided later in this report. The test results presented herein apply specifically to this item.

**Test Protocol Summary*** – This VOC emission test was performed 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 following 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 and maintained at controlled conditions of air flow rate, temperature, and relative humidity for ten 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) have been estimated by the propagation of error for the measurement of area-specific emission rates of 35 iVOCs plus formaldehyde and acetaldehyde in small- and mid-scale chambers. These RSDs are within a range of 5.0 – 35% with median and average values of 12% and 14%, respectively. Expanded MU equals 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 | $A_S$ | $m^2$ | 0.034 |
| Chamber volume | $V_C$ | $m^3$ | 0.067 |
| Loading ratio | L | $m^2/m^3$ | 0.504 |
| Avg. Inlet gas flow rate & Range | $Q_C$ | $m^3/h$ | 0.067 (0.066-0.068) |
| Avg Temperature & Range | | °C | 23.3 (22-24) |
| Avg Relative humidity & Range | | % | 53 (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 | $A_{P_B}$ | $m^2$ | 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 (µg/m³) |
|---|---|---|
| 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 CRELs and/or on other lists of toxicants of concern are listed first. Next, all iVOCs with pure standard calibrations are listed. Additionally, the 10 most abundant 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 (µg/m³) | CARB TAC Category | Prop 65 List? |
|---|---|---|---|---|---|
| Formaldehyde | 50-00-0 | | 9 | T-IIa | Yes |
| Acetaldehyde | 75-07-0 | | 140 | T-IIa | Yes |
| Ethylene glycol | 107-21-1 | | 400 | T-IIa | Yes |
| Ethanol | 64-17-5 | | | | |
| 2-Propanone (acetone) | 67-64-1 | | | | |
| Acetic acid | 64-19-7 | Yes | | | |
| Propylene Glycol | 57-55-6 | Yes | | | |

*"Yes" response indicates iVOC quantified using toluene as the calibration reference; all other iVOCs 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 ($\mu g/m^3$) | Emission Factor ($\mu g/m^2$-h) | Estimated Indoor Air Concentration ($\mu g/m^3$) | |
|---|---|---|---|---|
| | | | Classroom | Office |
| Formaldehyde | 1.3 | 2.6 | 1.2 | 1.4 |
| Acetaldehyde | 3.3 | 6.6 | 3.1 | 3.6 |
| Ethanol | 2.1 | 4.2 | 2.0 | 2.3 |
| 2-Propanone (acetone) | 3.1 | 6.3 | 2.9 | 3.4 |
| Acetic acid | 3.6 | 7.2 | 3.4 | 3.9 |
| Ethylene glycol | 16.1 | 31.9 | 14.9 | 17.2 |
| Propylene Glycol | 2.8 | 5.6 | 2.6 | 3.0 |

## 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 are relatively constant or generally declining over the test period. Some programs may require the 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. Aldehyde samples collected at 24, 48, and 96 hours were analyzed for formaldehyde as another quality measure. Formaldehyde emission factors are shown in Table 8. Product claims related to formaldehyde content may, in part, be based on formaldehyde emission factors.

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

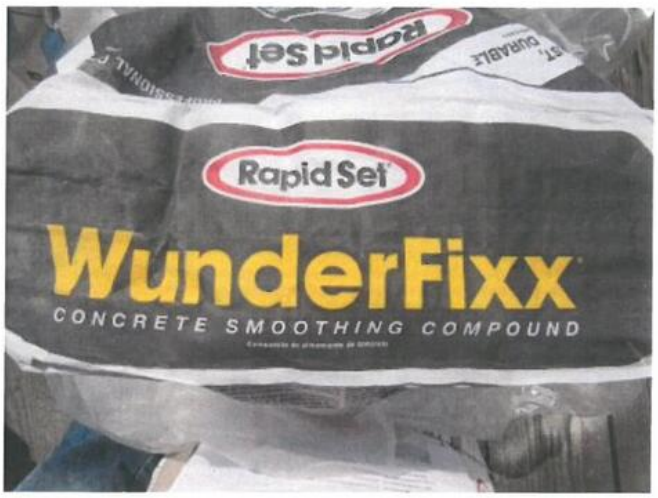
| Elapsed Time (h) | Chamber Concentration ($\mu g/m^3$) | Emission Factor ($\mu g/m^2$-h) | Estimated Indoor Air Concentration ($mg/m^3$) | |
|---|---|---|---|---|
| | | | Classroom | Office |
| 24 | LQ | LQ | LQ | LQ |
| 48 | LQ | LQ | LQ | LQ |
| 96 | LQ | LQ | LQ | LQ |

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

| Elapsed Time (h) | Chamber Concentration ($\mu g/m^3$) | Emission Factor ($\mu g/m^2$-h) |
|---|---|---|
| 24 | 1.8 | 3.7 |
| 48 | 1.4 | 2.9 |
| 96 | 1.3 | 2.6 |

## 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 Abstract Service registry number providing unique a chemical ID |
| Chamber Concentration | Measured chamber VOC concentration at time point minus any analytical blank or background concentration for empty chamber measured prior to the test. The lower limit of quantitation (LQ) or reporting limit for individual VOCs is 2 $\mu g/m^3$ 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 LQ or reporting limit for chamber concentration and specimen area tested |
| Formaldehyde & acetaldehyde | Volatile aldehydes quantified by HPLC following ASTM Standard Method D5197. LQs for formaldehyde and acetaldehyde are 0.7 $\mu g/m^3$ and 0.7 $\mu g/m^3$, 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 $\mu g/m^3$ 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 $\mu g/m^3$ |
| "na" | Not applicable |
| "<" | Less than value established by LQ |

**Equations Used in Calculations** – An emission factor (EF) in $\mu g/m^2$-h for a chemical in a chamber test of a building product sample is calculated using Equation 1:

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

where $Q_c$ is the chamber inlet air flow rate ($m^3/h$), C is the VOC chamber concentration ($\mu g/m^3$), $C_o$ is the corresponding chamber background VOC concentration ($\mu g/m^3$), and $A_s$ is the tested specimen exposed area ($m^2$).

## Definitions, Equations, and Comments, Continued

The indoor air concentration ($C_B$) for the modeled space in µg/m$^3$ is estimated using Equation 2 and the parameters defined in Table 3:

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

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 analysis of formaldehyde and acetaldehyde

| Parameter | Value |
|---|---|
| Solvent A | 65/35% $H_2O$/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 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. (µg/m³) |
|---|---|---|---|
| 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 µg/m³ is allowed.

berkeley analytical

Ship to: 815 Harbour Way South, Unit 6, Richmond, CA 94804
(Ph) 510-236-2325, (Fx) 510-236-2335
info@berkeleyanalytical.com

# 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 written contract is in effect.

| | |
|---|---|
| Berkeley Analytical Quotation Number: | 250225-02 |
| Purchase Order (enter company & number): | PO0189048 |

**Requested Test (automatically filled from BldgProdWorksheet Selections)**

| | |
|---|---|
| Test to be performed * | CDPH Std. Method V1.2 |
| Modeling scenario | Office, Classroom, and SF Residence |
| Test schedule (screening tests only) | |
| Target chemicals & chemical groups (screening) | |
| CARB ATCM test, schedule | |
| Test results application(s) | FloorScore, IAG, Other self claim, Other, see instructions |

**For Berkeley Analytical Use:**

| | | |
|---|---|---|
| Report ID | RPT68 | |
| Billing Reference | | |

**Customer Instructions for Sample Prep., Test Type, schedule, etc. (filled from BldProdWorksheet)**

Please add CARB ATCM. The form will not let me check the box.

**Customer Information ***

| |
|---|
| Company: CTS Cement Manufacturing Corporation |
| Street Address: 12442 Knott Street |
| City/State/Zip(postal code): Garden Grove, CA 92841 |
| Country: USA |
| Contact Name & Title (for reporting): Grant Kao VP Product Strategy & Compliance |
| Contact Phone/Fax Numbers: 714-793-1040 |
| Contact Email Address: gkao@ctscement.com |
| Financially Responsible Co. (if different): |

**Manufacturer Information (if different from customer)**

| |
|---|
| Company: |
| City/State/Country: |
| Contact Name/Title: |
| Phone Number/Email Address: |

**Sample Details**

| | |
|---|---|
| Product Commercial Name*: Rapid Set WunderFixx | |
| Product Commercial Part No. (if not part of name)*: | |
| Manufacturer Sample Tracking ID: 530020550021 | |
| Date Manufactured*: 2/5/25 | |
| Product Category & Use*: Hydraulic Cement based cosmetic patching compound | |
| Sample Construction Material*: Cementitious based material | |
| Plant Name & Location*: Mo Plant, Mexico, Missouri | |
| Collection Location within Plant: Warehouse | |
| Date & Time Collected* : March 4, 2025 at 10:00 AM | |
| Number of Sample Pieces*: 1 - 50 lb bag | Photo(s) of Collection Location: Attach |
| Sample Collected by*: Adam Reeves | |
| Phone/Fax Numbers*: 573-582-7300 | |
| E-mail Address*: blandreth@ctscement.com | |

**Shipping Details***

| |
|---|
| Packed & Shipped By: Adam Reeves |
| Shipping Date: 3/7/25 |
| Carrier/Airbill Number: DOT-Line Transportation SO0125957 |

**Customer Request for Laboratory Certificate of Compliance**

Indicate if you are ordering a Laboratory Certificate of Compliance:

Laboratory certificates are available for the compliance test(s) listed on the BldgProdWorksheet. Berkeley Analytical's laboratory test results and associated certificates are specific to the tested item. Claims made by the customer regarding the broader representativeness of the test results and certificate are the sole responsibility of the customer.

**Customer Authorizes Laboratory to Submit Copies of Test Report to:**

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

**For Berkeley Analytical Use Only**

| | |
|---|---|
| Condition of Shipping Package: | OK |
| Condition of Sample: | OK |
| Lab Tracking Number: | 923-005-03A |

Asterisk (*) See Notes Tab

**Sample Handling**

| Relinquished By* | Received By* | Signature* | Date* | Company* |
|---|---|---|---|---|
| Grant Kao | | | 3/7/2025 | CTS Cement Manufacturing Corp |
| | Stone Silva | Stone Silva | 3/19/25 | BKA |



FQ01.3