

Collection of Building Product Samples for VOC Emission Testing by CDPH Standard Method Version 1.2, 2017

BkA Guide 10-03.1

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Introduction

The instructions given below were transcribed from *CDPH/EHLB/Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.2, 2017*, accessible at https://www.cdph.ca.gov/Programs/CCDC/DEOD/EAH/IAQ/CDPH%20Document%20Library/CDPH-IAQ_StandardMethod_V1_2_2017_ADA.pdf and at <http://www.berkeleyanalytical.com/technical-resources/test-methods>. Please select, prepare and ship your building product test samples to Berkeley Analytical (BkA) as described in the CDPH Standard Method. Should you have any questions, please contact BkA at **510-236-2325** or email info@berkeleyanalytical.com.

- Section 8.7 describes product sample selection and is presented first. The manufacturer, its representative, or a third party (i.e., inspection body or certification body) is responsible for sampling. A written product sampling plan and records of the procedures used to select the test sample are required.
- Sections 2.11 through 2.1.8 apply to the collection of all product samples.
- Table 2-1 outlines the timeline for collection, shipping and testing of samples.
- Sections 2.1.9 – 2.1.13 (highlighted in gray) provide guidance on sample collection for specific product types. Refer to the procedures that apply to your product.
- Section 2.2 provides packaging and shipping instructions. We recommend that packages be shipped by overnight or 2-day express air freight to avoid delays.
- Each product sample must be accompanied by a unique chain-of-custody (COC) form as provided by BkA (<http://www.berkeleyanalytical.com/forms>). All of the required product sampling information is recorded in the COC.
- Ship samples to the address given at the end of this guide.

California Department of Public Health, Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.2, 2017

8.7 Product Sample Selection

8.7.1 Guidelines are established herein for the selection of test samples by manufacturers and certification/verification organizations that intend to use the test results as the basis for a product-wide claim.

8.7.1.1 The manufacturer and certification/verification organization shall have a pre-defined,

written sampling plan.

8.7.1.2 The manufacturer and certification/verification organization, as applicable, shall select the test sample from typical production operations. The sample shall be randomly selected from a production lot that is large enough to ensure that it is representative of the processes involved and of the quality that the manufacturer routinely introduces into the market.

8.7.1.3 The sample shall be in the condition in which it is offered for sale and shall not be a pre-production model or a sales sample.

8.7.1.4 If there are significant differences in manufacturing (e.g., different suppliers, variations among different plants, etc.) that may affect the emissions of VOCs from a product, then the sample shall be selected from the lot or group expected to give the worst results for the test. Preliminary testing may be needed to make this “worst-case” determination.

8.7.1.5 A range of product models, brands and/or styles with varying characteristics may be grouped together for testing purposes if the products can be expected to have virtually the same performance during testing and use. A test group shall only include models which are made using the same production methods and are comprised of the same product ingredients (formulation). The test sample shall be selected from the model in the group that can be expected to give the worst results for the test taking into consideration special attributes, materials, methods of manufacturing, suppliers, etc.

8.7.1.6 The manufacturer and/or a certification/verification organization, if applicable, shall document and maintain a record of the procedures used to select the test sample and, if applicable, the procedures used for the selection of a worst-case lot, group, or model in the form of calculations, test results, formulations, written explanations and other supportive data.

2.1 Product Sample Collection

2.1.1 Purpose

Guidelines are established for the collection, handling and documentation of product samples to ensure the samples being tested are reliable, uncontaminated, and well preserved. The guidelines are generally consistent with ISO 16000-11:2006.

2.1.2 Personnel

2.1.2.1 Personnel in charge of sample collection must perform the task carefully and conscientiously. If the sampling is done improperly, the sample is in error and any subsequent analysis is invalid.

2.1.2.2 Because of the importance of proper sampling, individuals engaged in sample collection and handling must be qualified by training and experience and possess a thorough understanding of the relevant practices and techniques or, at a minimum, be under the direct supervision of such an individual.

2.1.3 Representative Sample

Samples selected for testing shall be representative of the product manufactured and produced under typical operating conditions. See Section 8.7 for additional guidelines.

2.1.4 Sample Preservation

Due to the adsorptive and absorptive nature of most products being tested, special care shall be taken to prevent contamination of the product sample from any external source, such as solvent-containing products, prior, during and subsequent to the sample collection procedure. Samples must be stored immediately after collection in airtight, moisture-proof containers/packaging to prevent contamination and to preserve their chemical integrity by preventing subsequent VOC emission losses.

2.1.5 Location of Sampling

The product type and manufacturing process determine the optimal sampling location as described in the sampling procedures. The sampling location/site shall be selected to allow for reproducible, easy access to a representative cross section of the product category. The location shall be documented.

2.1.6 Sample Age

2.1.6.1 With the exception of containerized products, samples shall be collected at the point of production as soon as possible after the normal manufacturing process. Samples shall be collected within 24 hours of production with the exceptions specified in Sections 2.1.9.2, 2.1.10.3 and 2.1.11.2 for individual product categories. Containerized products (i.e., paints, sealants, adhesives, and other wet products) shall be collected and shipped within three months of production.

2.1.6.2 Samples shall be shipped to the laboratory within 24 hours of actual collection.

2.1.6.3 Timing of sample collection shall be coordinated between the manufacturing facility and the testing laboratory to ensure that testing of samples can commence within 5 weeks of the actual production date, except for containerized products for which testing of samples shall commence within 4 weeks of receipt at the laboratory (maximum 4 months from actual production date).

2.1.6.4 The schedule for sample collection, shipping, specimen preparation, and testing is summarized in **Table 2-1**.

2.1.7 If cutting or other preparation of a test specimen at a testing laboratory is exceptionally difficult or requires highly specialized equipment, a fully prepared test specimen may be fabricated by the manufacturer and shipped to the laboratory following all other applicable procedures. Such fabrication procedures shall be fully documented and reported. All cutting and other tools used to prepare the test specimen shall be cleaned properly to avoid sample contamination.

Table 2-1 Sample collection and testing chronology for products

Event	Schedule
<i>Dry Products (e.g., resilient flooring, carpet, wallcovering, etc.)</i>	
Manufacturing date	Production date establishes initial time
Sample collection	Within 24 hours of production (see specific exceptions in Sections 2.1.9.2, 2.1.10.3 and 2.1.11.2)
Shipment to laboratory	Within 24 hours of sample collection
Commence laboratory testing	Within 5 weeks of production
<i>Containerized products (e.g., adhesive, sealant, paint, etc.)</i>	
Manufacturing date	Production date establishes initial time
Shipment to laboratory	No more than 3 months after production
Commence laboratory testing	No more than 4 months after production

2.1.8 Sample Collection Procedures – General Considerations

2.1.8.1 Samples shall be collected directly from the manufacturing or packing line within 24-hours of production unless otherwise specified below in Sections 2.1.9.2, 2.1.10.3 and 2.1.11.2. Products meeting the specific requirements described in Sections 2.1.9.2, 2.1.10.3 and 2.1.11.2 for individual product categories may be collected within 7 days of actual production. Sample size shall be determined based on the surface area needed for testing. Seal the samples with two layers of heavy-duty aluminum foil so the air space within the package is minimized and the seams are crimped to create an airtight seal. Use clear packaging tape to assure that the package is airtight. Label the foil package and place in a clear polyethylene or Mylar bag. No more than one hour shall elapse between collection and packaging.

2.1.8.2 A sample label, listing the manufacturer, sample ID, product name, and date and time of sample collection, shall be affixed to both the outside of the foil-wrapped product package and the outside of the bag.

2.1.9 Sample Collection Procedures - Tile, strip, panel and plank products less than or equal to 2-feet wide including VCT, resilient floor tile, linoleum tile, wood floor strips, parquet flooring, laminated flooring, modular carpet tile, etc.

2.1.9.1 A minimum of four representative tiles, strips or planks, each with a surface area that is greater than the surface area needed for testing, shall be collected. The tiles, strips or planks shall be stacked tightly together for packaging (normally face to back). Package the stack of samples as described in Sections 2.1.8.

2.1.9.2 Samples may be collected from consumer packages up to 7 days from the actual product completion date only if these packages contain tightly stacked pieces. A package containing stacked pieces shall be opened and a sufficient number of pieces shall be selected and withdrawn from the center of the stack to prepare the sample as described in Section 2.1.9.1.

2.1.10 Sample Collection Procedures – Sheet and roll goods greater than 2-feet wide including broadloom carpet, sheet vinyl, sheet linoleum, carpet cushion, wallcovering, fabric, etc.

2.1.10.1 A strip approximately one-foot wide (or wider depending on surface area needed for testing) shall be cut across the width of the roll. At least one foot shall be discarded from each end of the strip. The remaining material shall be cut into squares. A minimum of four squares is required. The squares shall be stacked tightly together face to back, and packaged as described in Section 2.1.8.

2.1.10.2 Wallcovering and other fabric may be collected as a full or partial production roll. In this case, the roll shall have at least 10 layers of material. Package samples as described in Sections 2.1.8.

2.1.10.3 Samples may be collected from tightly wound rolls up to 7 days from the actual production completion date by unrolling a minimum of 2 m or at least two full roll circumferences (i.e., roll diameter x 3.14 x 2) from the end of the roll.

2.1.11 Sample Collection Procedures – Rigid panel products greater than 2-feet wide including gypsum board, other wall paneling, insulation board, OSB, MDF, plywood, particleboard, etc.

2.1.11.1 For large panel products, the sample shall be taken at least 6 inches away from all edges of a panel. Within this boundary, the panel shall be cut into squares. A minimum of four squares is required. The squares shall be stacked tightly together face to back, and packaged as described in Sections 2.1.8.

2.1.11.2 Samples may be collected from stacks of panels without spacers up to 7 days from the actual production completion date by selecting a panel that is positioned at least three panels down from the top of the stack.

2.1.12 Sample Collection Procedures – Insulation products

2.1.12.1 Batt and roll insulation products – Remove one or two pieces of insulation from the center of a newly produced consumer package. Cut four 2-foot long sections across the width of the batt or roll. These may be cut into smaller sizes, 12-in by 12-in or larger, depending upon chamber size. Stack four pieces together, compress them to reduce the air volume and wrap them in two layers of heavy-duty aluminum foil. Package as described in Sections 2.1.8. It may be necessary to package thick insulation as two separate stacks. Alternately, an unopened consumer package may be shipped to the laboratory.

2.1.12.2 Blowing wools and loose fill insulation products – Collect insulation directly from the production line or from a newly produced consumer package. Remove enough material from the center of the package to produce at least one-cubic foot or more of installed insulation depending upon chamber size. Compress the material and package in one or two batches as described for batt and roll products. Alternatively, an unopened consumer package may be shipped to the laboratory.

2.1.12.3 Boards and rigid foam insulation products – Collect a board directly from the production line or from a newly produced consumer package. If removed from a consumer package, select a board from the center of the stack. Cut individual pieces at random, 12-in by 12-in or larger depending upon chamber size, from the board. Stack four pieces together and package as described for batt and roll products.

2.1.12.4 Spray foam insulation – Closed cell and open cell spray foam insulation test samples are prepared at the manufacturer’s location following the product specifications. For a substrate, use a 12-in by 12-in piece of clean cardboard, or larger depending upon chamber size, and wrap with one layer of aluminum foil. Spray foam onto the substrate covering the large majority of the surface. Closed cell foam is sprayed to a thickness of 2 inch. Open cell foam is sprayed to a thickness of 4 inch or 6 inch depending upon application. Record the product names and lot numbers of the A- and B-side materials and the relevant equipment parameters (temperatures, pressures, etc.) for the application. For open cell foam, scarf the sample (i.e., remove the skin) one hour after application to a minimum thickness of 3.5 inch or 5.5 inch with a clean knife or saw (do not use a hot knife). Create two identical samples. Wrap each sample in two layers of aluminum foil and package as described for batt and roll products.

2.1.13 Sample Collection Procedures – Containerized products including adhesives, sealants, paints, other coatings, primers and other “wet” products.

2.1.13.1 Paints, other coatings and primers can be supplied in original, standard 1-quart or 1-gallon consumer containers.

2.1.13.2 Adhesives can be supplied in their consumer packaging such as an applicator tube or can if these are small (i.e., less than 1 gallon). Alternately, the samples of adhesives can be collected in clean, unused paint cans (1-pint or 1-quart size). Special care is required to assure these samples are representative of the larger batches from which they are collected. Containers shall be filled so there is minimal unfilled headspace above or below the adhesive. The collection procedure shall be documented.

2.1.13.3 Samples of containerized products sent to a laboratory shall be accompanied by a Material Safety Data Sheet (MSDS) and a specification sheet that describes the products, lists the major chemical ingredients, identifies the intended uses, describes the application methods and coverage rates.

2.1.13.4 If specialized tools are required to apply a containerized product to a substrate (e.g., a specific notched trowel not readily obtainable in a hardware store) these tools also shall be supplied to the laboratory.

2.1.13.5 A sample label, listing the manufacturer, sample ID, and date and time of sample collection, shall be affixed to the outside of the product container.

2.1.13.6 Testing laboratories shall have the right to return the unused portion of any containerized product to the organization supplying the product for testing.

2.2 Packaging and Shipment of Samples

2.2.1 Product samples shall be carefully packaged in a cardboard box or other shipping container suitable for air shipment so that the sealed polyethylene or Mylar bag and the foil layers will not be damaged or punctured during shipment.

2.2.2 Only one product shall be placed in a shipping container.

2.2.3 The product sample shall be shipped in a manner to meet the timetable set in Table 2.1.

2.2.4 A chain of custody form described below (Section 2.3) shall be prepared for each sample. The form shall be completed, signed and attached to the outer bag containing the packaged sample using a clear plastic window envelope or equivalent method.

Shipping Address for Building Product Samples:

Berkeley Analytical
Attn: Sample Custodian
815 Harbour Way South, Unit 6
Richmond, CA 94804
Ph: 510-236-2325

END OF GUIDE