



Standard Test Method for Collection of Volatile Organic Compounds Emitted During Simulated Manufacturing of Engineered Wood Products Via a Sealed Caul Plate Method¹

This standard is issued under the fixed designation D7770; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method provides a method for the collection of volatile organic compounds (VOC) that are emitted during the manufacture of engineered wood products using a laboratory environment designed to simulate a defined production process. The method is used for the determination of the amounts of methanol, formaldehyde, phenol and other VOC that may be emitted during conditions designed to simulate production such as hot pressing, the conditions of ‘hot stacking’ and ‘cool-down’ that occurs post-press.

1.2 The test method was originally developed to measure certain VOC from exterior plywood meeting Voluntary Product Standard PS 1–09 and structural composite lumber products such as laminated veneer lumber (LVL) meeting Specification [D5456](#). Both of these product types are typically manufactured using phenol-formaldehyde resin based adhesives that meet Specification [D2559](#).

1.3 The test method is suitable for many types of wood products bonded with adhesives.

1.4 This test method is specific for collecting VOC during simulated production of wood products and is not designed to determine general organic emissions from all indoor materials or sources.

1.5 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. Some specific hazards statements are given in Section 7 on Hazards.*

¹ This test method is under the jurisdiction of ASTM Committee [D07](#) on Wood and is the direct responsibility of Subcommittee [D07.03](#) on Panel Products.

Current edition approved Nov. 1, 2012. Published December 2012. DOI: 10.1520/D7770-12

2. Referenced Documents

2.1 *ASTM Standards:*²

[D2145](#) Method of Test for Phenol Content of Phenol-Water Mixtures (Withdrawn 1978)³

[D2559](#) Specification for Adhesives for Bonded Structural Wood Products for Use Under Exterior Exposure Conditions

[D4442](#) Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials

[D4933](#) Guide for Moisture Conditioning of Wood and Wood-Based Materials

[D5456](#) Specification for Evaluation of Structural Composite Lumber Products

[E346](#) Test Methods for Analysis of Methanol

[E1333](#) Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber

2.2 *Other Standards:*

[Voluntary Product Standard PS 1–09](#) Structural Plywood

3. Terminology

3.1 *Definitions:*

3.1.1 *target production process*—a set of specified manufacturing parameters that define the production of an adhesive bonded wood product. For the purposes of this standard, those parameters are designed to be representative of a specific production facility and are used to derive the test specimen.

3.1.2 *test specimen*—a combination of defined wood elements with or without applied adhesive that is exposed to pressing and post pressing conditions in a defined laboratory setting that is designed to simulate the Target Production Process (see [3.1.1](#)).

3.1.3 *VOC*—for the purposes of this standard, the term VOC means the specific volatile organic compounds of

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.