



Designation: D8591 – 24

Standard Test Method for Determination of Fluorotelomer Alcohols in Test Chamber Air by Thermal Desorption-Gas Chromatography-Triple Quadrupole Tandem Mass Spectrometry (TD-GC-MS/MS)¹

This standard is issued under the fixed designation D8591; 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 covers the detection and quantification of fluorotelomer alcohols (FTOHs), a group of volatile and semivolatile per- and polyfluoroalkyl substances (PFAS), in air samples collected on thermal desorption (TD) tubes by thermal desorption-gas chromatography-triple quadrupole tandem mass spectrometry (TD-GC-MS/MS) in multiple reaction monitoring (MRM) mode.

1.2 This test method has been validated in a single lab for 1H, 1H, 2H, 2H-perfluorohexan-1-ol (4:2 FTOH; CAS No. 2043-47-2), 1H, 1H, 2H, 2H-perfluorooctan-1-ol (6:2 FTOH; CAS No. 647-42-7), 1H, 1H, 2H, 2H-perfluorodecan-1-ol (8:2 FTOH; CAS No. 678-39-7), and 1H, 1H, 2H, 2H-perfluorododecan-1-ol (10:2 FTOH; CAS No. 865-86-1) as target analytes.

1.3 This test method is not limited to these target analytes; however, the applicability of this test method to other volatile and semivolatile PFAS shall be demonstrated by meeting or exceeding the performance criteria of this test method.

1.4 This test method has been validated for air samples collected from test chambers. It may be applicable to indoor air samples, including samples of interior vehicle and workplace air, air from associated sampling containers, such as sampling bags or bottles, as well as ambient outdoor air samples; however, the applicability of this test method to other types of air samples shall be demonstrated by meeting or exceeding the performance criteria of this test method.

1.5 This test method is to be used in concert with approved standards for conducting air sampling, such as Practice [D6196](#) (choosing sorbents, sampling parameters, and thermal desorption analytical conditions for monitoring volatile organic chemicals in air), and for conducting chamber tests, such as Practice [D7706](#) (micro-scale chamber), Guide [D5116](#) (small-scale chamber), Practice [D6670](#) (full-scale chamber), or Practice [D7143](#) (emission cells).

1.6 *Units*—The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.7 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

- [D1193](#) Specification for Reagent Water
- [D1356](#) Terminology Relating to Sampling and Analysis of Atmospheres
- [D5116](#) Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products
- [D6196](#) Practice for Choosing Sorbents, Sampling Parameters and Thermal Desorption Analytical Conditions for Monitoring Volatile Organic Chemicals in Air
- [D6670](#) Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/Products
- [D7143](#) Practice for Emission Cells for the Determination of Volatile Organic Emissions from Indoor Materials/Products
- [D7706](#) Practice for Rapid Screening of VOC Emissions from Products Using Micro-Scale Chambers
- [D8141](#) Guide for Selecting Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs)

¹ This test method is under the jurisdiction of ASTM Committee [D22](#) on Air Quality and is the direct responsibility of Subcommittee [D22.05](#) on Indoor Air.

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