



Designation: D7459 – 08 (Reapproved 2024)

Standard Practice for Collection of Integrated Samples for the Speciation of Biomass (Biogenic) and Fossil-Derived Carbon Dioxide Emitted from Stationary Emissions Sources¹

This standard is issued under the fixed designation D7459; 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 practice defines specific procedures for the collection of gas samples from stationary emission sources for subsequent laboratory determination of the ratio of biomass (biogenic) carbon to total carbon (fossil derived carbon plus biomass or biogenic carbon) in accordance with Test Methods **D6866**.

1.2 This practice applies to stationary sources that burn municipal solid waste or a combination of fossil fuel (for example, coal, oil, natural gas) and biomass fuel (for example, wood, wood waste, paper, agricultural waste, biogas) in boilers, combustion turbines, incinerators, kilns, internal combustion engines and other combustion devices.

1.3 This practice applies to the collection of integrated samples over periods from 1 h to 24 h, or longer.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 *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.*

1.6 *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

D1356 Terminology Relating to Sampling and Analysis of Atmospheres

D4840 Guide for Sample Chain-of-Custody Procedures

D6866 Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis

2.2 *Federal Standards:*³

40 CFR 60 Appendix B, Performance Specification

40 CFR 60 Appendix A, Reference Method

Uncertainties In Non-Proportional Sampling Part 75 Policy And Communication Efforts, EPA Contract No. EP-W-07-064, Work Assignment No. 0-8, Task No. 6 (February 15, 2008 – Draft)

3. Terminology

3.1 *Definitions*—For additional definitions of terms used in this practice, refer to Terminology **D1356** and Test Methods **D6866**.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *biomass (biogenic) CO₂, n—CO₂* recently removed from the atmosphere by plants, then returned to the atmosphere by combustion or biogenic decay.

3.2.1.1 *Discussion*—Biomass CO₂ emitted from combustion devices is often referred to as “carbon-neutral CO₂.”

3.2.1.2 *Discussion*—Biomass carbon contains the isotope radiocarbon (carbon-14) in measurable quantities. Radiocarbon is a radioactive isotope of the element carbon, carbon-14,

¹ This practice is under the jurisdiction of ASTM Committee **D22** on Air Quality and is the direct responsibility of Subcommittee **D22.03.01** on Source Emissions.

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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.

³ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://www.dodssp.daps.mil>.