



Designation: D5832 – 98 (Reapproved 2021)

Standard Test Method for Volatile Matter Content of Activated Carbon Samples¹

This standard is issued under the fixed designation D5832; 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 determination of the percentage of gaseous products, exclusive of moisture vapor, present in virgin and used activated carbons which are released under specific conditions of the test.

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

1.3 *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.*

1.4 *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

D2652 Terminology Relating to Activated Carbon

D2867 Test Methods for Moisture in Activated Carbon

D3175 Test Method for Volatile Matter in the Analysis Sample of Coal and Coke

3. Terminology

3.1 *Definitions*—For definitions of terms used in this test method relating to activated carbon, refer to Terminology D2652.

4. Summary of Test Method

4.1 Volatile matter is determined by establishing the loss in mass resulting from heating an activated carbon sample under

rigidly controlled conditions. The measured mass loss, corrected for moisture as determined in Test Method D2867, establishes the volatile matter content of the activated carbon sample.

5. Significance and Use

5.1 Volatile matter, when determined as herein described, may be used as a relative measure of the extent of carbonization in an activated carbon and the extent of loading of volatile material on an activated carbon that has been used in an adsorption application.

5.2 Combined with other information, the volatile matter of an activated carbon may be useful in evaluating its performance in an adsorption application.

5.3 Other automated methods for the determination of the volatile content of solids, such as using a thermogravimetric analyzer (TGA), can be used in place of this test method with equally reliable results.

6. Apparatus

6.1 *Crucible and Cover*, high-temperature porcelain, high form, 30 cc capacity.

6.2 *Oven*, forced-air circulation, capable of temperature regulation up to 250 °C.

6.3 *Moisture Determination Apparatus*, as described in Test Method D2867.

6.4 *Muffle Furnace*, gravity circulation, capable of temperature regulation at 950 ± 25 °C. An electric furnace similar to the one described in Test Method D3175 is suitable for use in this test method.

6.5 *Desiccator*, glass, with indicating type desiccant.

6.6 *Balance*, analytical, capable of 0.1 mg sensitivity.

7. Hazards

7.1 The furnace used in this test method should be located in a well-ventilated area to eliminate exposure to possible toxic vapors that may evolve from the carbon sample during the high-temperature heating.

7.2 Exercise care when working with the high-temperature furnace to eliminate the possibility of burns.

¹ This test method is under the jurisdiction of ASTM Committee D28 on Activated Carbon and is the direct responsibility of Subcommittee D28.04 on Gas Phase Evaluation Tests.

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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.