



Designation: D4069 – 95 (Reapproved 2014)

Standard Specification for Impregnated Activated Carbon Used to Remove Gaseous Radio-Iodines from Gas Streams¹

This standard is issued under the fixed designation D4069; 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 standard covers the specifications for physical properties and performance requirements of virgin impregnated activated carbon to be used for the removal of gaseous radioiodine species from gas streams.

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

2. Referenced Documents

2.1 ASTM Standards:²

- D2652 Terminology Relating to Activated Carbon
- D2854 Test Method for Apparent Density of Activated Carbon
- D2862 Test Method for Particle Size Distribution of Granular Activated Carbon
- D2866 Test Method for Total Ash Content of Activated Carbon
- D2867 Test Methods for Moisture in Activated Carbon
- D3466 Test Method for Ignition Temperature of Granular Activated Carbon
- D3802 Test Method for Ball-Pan Hardness of Activated Carbon
- D3803 Test Method for Nuclear-Grade Activated Carbon
- D3838 Test Method for pH of Activated Carbon
- E300 Practice for Sampling Industrial Chemicals

2.2 ANSI/ASME Standard:

- NQA-1 Quality Assurance Program Requirements for Nuclear Facilities³

¹ This specification 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.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

3. Terminology

3.1 *Definitions*— Definitions relating to this specification are given in Terminology D2652.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *lot*—a quantity of impregnated activated carbon of the same grade or type, consisting of one or more batches, that has been produced under the same manufacturer's production order using the same manufacturing procedure and equipment.

3.2.2 *batch*—a quantity of impregnated activated carbon of the same grade or type that has been produced using the same manufacturing procedures and equipment, and that has been homogenized so as to exhibit the same physical properties and performance characteristics throughout its mass.

NOTE 1—The maximum allowable batch size shall be 10 m.

3.2.3 *qualification test*—a one-time test performed on each of three grab samples taken randomly from a single homogenized batch of a vendor's grade or type of impregnated activated carbon to determine its suitability for the purpose stated herein. The size of each grab sample should be at least 500 cm.

3.2.4 *batch test*—a test performed on a representative sample of each batch of the same grade or type of impregnated activated carbon to determine whether that batch meets the specification prescribed herein.

3.2.5 *grade or type*—the manufacturer's designation for an impregnated activated carbon having a given set of performance capabilities and physical properties.

4. Materials and Manufacture

4.1 The activated carbon furnished under this specification shall be virgin material. Reactivated carbon shall not be used.

4.2 Impregnated activated carbon furnished under this specification shall be subject to the document control provisions of Section 7 of ANSI NQA-1.

4.3 Materials used in the manufacture of impregnated-activated carbon furnished under this specification shall be traceable as provided in Section 9 of ANSI NQA-1.

5. Significance and Use

5.1 Activated carbons used in containment systems for nuclear reactors must be capable of functioning under both