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An American National Standard

Standard Test Method for Bulk Density by Physical Measurements of Manufactured Carbon and Graphite Articles[1]

This standard is issued under the fixed designation C559; 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~~ Scope*

1.1 This test method covers the determination of the bulk density of manufactured articles of carbon and graphite of at least ~~500 mm~~500 mm^3 volume. The bulk density is calculated to an accuracy of 0.25 %, using measurements of mass and dimensions in air at ~~25~~25 °C ± ~~5°C.~~5 °C.

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

2. Referenced Documents

2.1 *ASTM Standards:*[2]

IEEE/ASTM SI-10 Standard for Use of the International System of Units (SI) (the Modern Metric System)

3. Terminology

3.1 ~~*Definitions of Terms Specific to This Standard:*~~*Definitions:*

3.1.1 *bulk density, —n—in carbon and graphite technology,* the mass of a unit volume of material including both permeable and impermeable ~~voids.~~ voids (and boron compounds in the case of boronated carbon or boronated graphite) present in the material at room temperature.

4. Significance and Use

4.1 Bulk density as determined by this test method is a basic material property of importance in manufacturing and application of carbon and graphite.

4.2 This test method can be used for quality and process control, material characterization and description, and other purposes.

5. Preparation of Test Specimens

5.1 Machine test specimens from the manufactured article in the form of a rectangular parallelepiped or a right circular cylinder. The minimum mass of the specimen shall be 2000 times the sensitivity of the balance used to weigh the specimen, and the volume of the specimen shall not be less than ~~500 mm~~500 mm^3. The minimum dimension of the specimen shall be the larger of:

5.1.1 Ten times the length of the largest visible particle, and

5.1.2 2000 times the resolution of the device used for measuring the dimension.

5.2 During the machining operation, use no lubricant having a boiling point above ~~100°C.~~100 °C. All corners, edges, and faces of the specimen should be free of chips or gouges. Ensure that the specimen is free of any residue from the machining operation. Dry the specimen for a minimum of ~~2 h~~ 2 h at ~~110°C,~~110 °C, and then allow it to cool to ~~25~~25 °C ± ~~5°C~~5 °C in a desiccator. The specimen shall not be removed from the desiccator until immediately prior to weighing.

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[1] This test method is under the jurisdiction of ASTM Committee D02 on Petroleum ~~Products~~ Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.F0 on Manufactured Carbon and Graphite Products.

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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.

***A Summary of Changes section appears at the end of this standard**