



Designation: C886 – 21

# Standard Test Method for Scleroscope Hardness Testing of Carbon and Graphite Materials<sup>1</sup>

This standard is issued under the fixed designation C886; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope\*

1.1 This test method covers the apparatus and procedure for determining the hardness of carbon and graphite materials using the Model C-2 scleroscope<sup>2</sup> with the hammer calibrated for use on carbon and graphite materials with particles smaller than 0.8 mm.<sup>3</sup>

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:*<sup>4</sup>

[D4175 Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants](#)

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

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<sup>2</sup> Registered trademark of the Shore Instrument and Manufacturing Co., Inc., 80-A Commercial St., Freeport, NY 11520, and available from Instron Worldwide Headquarters, 825 University Ave., Norwood, MA 02062, [www.instron.com](http://www.instron.com).

<sup>3</sup> This test method may be more readily understood by referring to the following documents: Practice E448, ANSI C 64.1, Brushes for Electrical Machines, available from American National Standards Institute, 1430 Broadway, New York, NY 10017, and Lysaght and DeBellis, *Indentation Hardness Testing*, American Chain and Cable Corp., Reinhold Publishing Co., 1969.

<sup>4</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[E171 Practice for Conditioning and Testing Flexible Barrier Packaging](#)

[E448 Practice for Scleroscope Hardness Testing of Metallic Materials \(Withdrawn 2017\)](#)<sup>5</sup>

2.2 *ANSI Standard:*<sup>6</sup>

[ANSI C 64.1 Brushes for Electrical Machines](#)

## 3. Terminology

3.1 For definitions of terms used in this test method, refer to Terminology [D4175](#).

## 4. Summary of Test Method

4.1 The specimen is held in position, and the height of rebound of a diamond-tipped hammer is observed and recorded as the hardness number.

## 5. Significance and Use

5.1 The scleroscope is a rebound hardness tester with a scale divided into 140 equal parts. For carbon and graphite materials, there is no established correlation between the Scleroscope hardness scale and other hardness scales. The test is useful in the evaluation and the manufacturing control of carbon and graphite materials.

## 6. Interferences

6.1 Lack of alignment of the instrument, as specified in Section 11, will cause low readings.

6.2 The specimen must be held firmly in position and must have adequate support from the anvil on which the sample rests. Neglect of alignment, positioning, or support will result in low readings.

6.3 Rough surface finish, above 3.2  $\mu\text{m}$  AA, may cause low readings.

6.4 Indentations that are superimposed or spaced too closely together (approximately 3 mm) will cause incorrect readings.

<sup>5</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

<sup>6</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

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