



Designation: D1512 – 23

Standard Test Methods for Carbon Black—pH Value¹

This standard is issued under the fixed designation D1512; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 These test methods, Test Method A—Boiling Slurry and Test Method B—Sonic Slurry, are used to indicate the pH of the carbon black surface by measuring the pH of water in contact with the carbon black.

NOTE 1—The pH of the carbon black is often used in this industry to indicate the relative acidity or alkalinity of carbon black and will be used in the remainder of these test methods to describe this property.

NOTE 2—Test Method A and Test Method B do not always give the same results.

1.2 The values stated in SI units are to be regarded as the standard. The values in parentheses are for information only.

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

D1193 Specification for Reagent Water

D1799 Practice for Carbon Black—Sampling Packaged Shipments

D1900 Practice for Carbon Black—Sampling Bulk Shipments

D4483 Practice for Evaluating Precision for Test Method

¹ These test methods are under the jurisdiction of ASTM Committee D24 on Carbon Black and are the direct responsibility of Subcommittee D24.31 on Non-Carbon Black Components of Carbon Black.

Current edition approved June 1, 2023. Published July 2023. Originally approved in 1975. Last previous edition approved in 2021 as D1512 – 21. DOI: 10.1520/D1512-23.

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.

Standards in the Rubber and Carbon Black Manufacturing Industries

E70 Test Method for pH of Aqueous Solutions With the Glass Electrode

3. Significance and Use

3.1 The pH level of a carbon black is known to affect the vulcanization of some rubber compounds.

TEST METHOD A—BOILING SLURRY

4. Apparatus

4.1 *pH Meter*, (digital is recommended) having an accuracy of ± 0.05 pH and equipped with a combination electrode and RNC connector.

4.2 *Container*, stainless steel or copper, 125 cm³ or larger.

4.3 *Hot Plate*.

4.4 *High Speed Mill, Mixer or Mortar and Pestle*.

4.5 *Beakers*, glass, appropriate beaker size to keep the ratio of Carbon Black to water 1:10, graduated with watch glasses.

4.6 *Magnetic Stir Plate*.

4.7 *Magnetic Stir Bars*.

5. Reagents

5.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.³ Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean reagent water as defined by Type 1 in Specification D1193.

³ *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.