



Designation: D1514 – 23

Standard Test Method for Carbon Black—Sieve Residue¹

This standard is issued under the fixed designation D1514; 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 water wash sieve residue in regular untreated carbon blacks. It may not be applicable to oil-treated carbon blacks because the oil would prevent proper wetting of the black by water.

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.* For specific precautionary statements, see Section 6.

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

D1799 Practice for Carbon Black—Sampling Packaged Shipments

D1900 Practice for Carbon Black—Sampling Bulk Shipments

D4483 Practice for Evaluating Precision for Test Method Standards in the Rubber and Carbon Black Manufacturing Industries

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

¹ This test method is under the jurisdiction of ASTM Committee D24 on Carbon Black and is the direct responsibility of Subcommittee D24.31 on Non-Carbon Black Components of Carbon Black.

Current edition approved April 1, 2023. Published April 2023. Originally approved in 1957. Last previous edition approved in 2020 as D1514 – 15 (2020). DOI: 10.1520/D1514-23.

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.

3. Summary of Test Method

3.1 A sample of carbon black is washed with water through a wire-mesh screen of a specified size until all that remains is a non-carbon black residue. This residue is dried, weighed, and the amount of residue is expressed as mg/kg (ppm) of the original sample.

4. Significance and Use

4.1 The quantity of sieve residue of carbon black is important in some molded or extruded products as it may relate to the surface appearance of those products. The maximum residue in each application is normally determined and agreed to between the user and the producer.

5. Apparatus

5.1 *Sieve and Filtering Apparatus*,^{3,4} as shown in Fig. 1.

5.2 *Balance*, with a sensitivity of 0.01 g.

5.3 *Analytical Balance*, with a sensitivity of 0.1 mg.

5.4 *Oven*, gravity-convection type, capable of temperature regulation within $\pm 1^\circ\text{C}$ at 125°C and temperature uniformity within $\pm 5^\circ\text{C}$.

5.5 *Sieves*, of either phosphor bronze or stainless steel. The sieve shall be in accordance with Specification E11. The sieve to be used shall be agreed upon between the purchaser and the seller.

5.6 *Weighing Dishes*.

6. Precautions

6.1 Keep the apparatus clean at all times to prevent contamination.

³ Sieve and filtering apparatus available from Jaron Technologies LLC, 2338 Duncan St., Pampa, TX 79065, has been found suitable. The A2000 Test Set from HITEC Luxembourg S.A., 49 rue du Baerendall, L-8212 Mamer, Luxembourg, has been found suitable. An ASTM specified apparatus modified with an enlarged funnel leg ID (5.080 cm or 2.0 in.) and sieve screen OD (6.032 cm or 2.375 in.) has also been found suitable.

⁴ The sole source of supply of housing No. 20 and cartridge No. 30 known to the committee at this time is Amtek, Plymouth Products Division, 562 Indiana Ave., Sheboygan, WI 53081. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,¹ which you may attend.