Designation: D7724 – 11

StandardTest Method for
Carbon Black—Non-Dispersible Matter by Mechanical Flushing (NDM)[1]

This standard is issued under the fixed designation D7724; 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 non-dispersible matter after mechanical water flushing of 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 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]

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

3. Summary of Test Method

3.1 A sample of carbon black is mechanically flushed with water through a wire-mesh screen of a specified size until all that remains is a non-dispersible matter of carbon black. The non-dispersible matter 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 non-dispersible matter of carbon black is important in some molded or extruded products as it may relate to the surface appearance of those products. The maximum amount of non dispersible matter and the minimum size of the particles to be analyzed in each application is normally determined and agreed to between the user and the producer.

5. Apparatus

5.1 *Sieve Apparatus,* as shown in Fig. 1.[3]

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 ±1°C at 125°C and temperature uniformity within ±5°C.

5.5 *Sieves,* diameter 100 mm, of either phosphor bronze or stainless steel.[3] The sieve shall be in accordance with Specification E11. The sieve size to be used shall be agreed upon between the purchaser and the carbon black manufacture.

5.6 *Weighing Dishes.*

6. Precautions

6.1 Install the apparatus as described in the manufacturer's instructions and keep it clean at all times to prevent contamination.

6.2 Examine the sieves each time they are used to make sure that no cracks or holes have developed.

7. Sampling

7.1 Samples shall be taken in accordance with Practice D1799 or Practice D1900.

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[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.

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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] The sole source of supply of the apparatus known to the committee at this time is Krahnen IQS, GmbH, Paffrather Str. 13–15, D-51069 Koeln, Germany. 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.