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Standard Practice for Carbon Black—Evaluation of an Industry Reference Black¹

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^{ε1} NOTE—Editorial changes were made throughout in January 1997.

1. Scope

1.1 This practice offers guidelines for the production and testing for uniformity of a lot of carbon black to be used as an Industry Reference Black (IRB).

1.2 The values stated in SI units are to be regarded as the standard. The values given 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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 412 Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers—Tension²
- D 1506 Test Methods for Carbon Black—Ash Content²
- D 1508 Test Method for Carbon Black, Pelleted—Fines Content²
- D 1509 Test Methods for Carbon Black—Heating Loss²
- D 1510 Test Method for Carbon Black—Iodine Adsorption Number²
- D 1513 Test Method for Carbon Black, Pelleted—Pour Density²
- D 1514 Test Method for Carbon Black—Sieve Residue²
- D 1618 Test Method for Carbon Extractables—Toluene Discoloration²
- D 1765 Classification System for Carbon Blacks Used in Rubber Products²
- D 2414 Test Method for Carbon Black—*n*-Dibutyl Phthalate Absorption Number²
- D 3191 Test Methods for Carbon Black Evaluation in SBR (Styrene-Butadiene Rubber)²
- D 3192 Test Methods for Carbon Black Evaluation in NR (Natural Rubber)²

- D 3265 Test Method for Carbon Black—Tint Strength²
- D 3493 Test Method for Carbon Black—Dibutyl Phthalate Absorption Number of Compressed Sample²
- D 3765 Test Method for Carbon Black—CTAB (Cetyltrimethyl-ammonium Bromide) Surface Area²
- D 4324 Test Method for Carbon Black, Pelleted—Pellet Attrition²
- D 4820 Test Method for Carbon Black—Surface Area by Multipoint B. E. T. Nitrogen Adsorption²
- D 5230 Test Method for Carbon Black Automated Individual Pellet Crush Strength²
- D 5816 Test Methods for Carbon Black—External Surface Area by Multipoint Nitrogen Adsorption²

3. Significance and Use

3.1 These guidelines are intended to ensure that IRBs are evaluated by a standard procedure.

3.2 These guidelines are to be used to establish the average physicochemical and physical rubber properties of a lot of carbon black to be used as an IRB.

4. Production, Quality Control, and Quality Assurance

4.1 It is assumed that the manufacturer of the IRB will use state-of-the-art techniques to ensure maximum uniformity throughout the entire production run of at least 270 000 kg (600 000 lb). The testing called for in this practice is not intended to be a substitute for in-process quality control.

4.2 It is assumed that the manufacturer of the IRB will use blending as needed to ensure uniformity throughout the entire production lot. This interlaboratory study is only adequate to verify the quality of a homogeneous lot.

4.3 The bagged black will be segregated into at least twelve 23 000-kg (50 000-lb) lots (20 skids). Partial lots of less than 23 000 kg (50 000 lb) will be discarded.

5. Sampling

5.1 After a suitable time to allow the black to stabilize (30 to 45 days), a bag will be selected from the approximate middle of each of the 23 000-kg (50 000-lb) lots; the bags selected will be numbered from one through *n*, where *n* is the total number of lots, in order to represent the corresponding 23 000-kg (50 000-lb) lots.

¹ This practice is under the jurisdiction of ASTM Committee D-24 on Carbon Black and is the direct responsibility of Subcommittee D24.61 on Carbon Black Sampling and Statistical Analysis.

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² Annual Book of ASTM Standards, Vol 09.01.