



Designation: D4122 – 17^{ε1}

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

This standard is issued under the fixed designation D4122; 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.

^{ε1} NOTE—Editorial corrections made throughout [Annex A1](#) in June 2017.

1. Scope

1.1 This practice covers 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.*

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

[D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension](#)

[D1506 Test Methods for Carbon Black—Ash Content](#)

[D1508 Test Method for Carbon Black, Pelleted Fines and Attrition](#)

[D1509 Test Methods for Carbon Black—Heating Loss](#)

[D1510 Test Method for Carbon Black—Iodine Adsorption Number](#)

[D1513 Test Method for Carbon Black, Pelleted—Pour Density](#)

[D1514 Test Method for Carbon Black—Sieve Residue](#)

[D1618 Test Method for Carbon Black Extractables—Transmittance of Toluene Extract](#)

[D2414 Test Method for Carbon Black—Oil Absorption Number \(OAN\)](#)

[D3182 Practice for Rubber—Materials, Equipment, and Procedures for Mixing Standard Compounds and Preparing Standard Vulcanized Sheets](#)

[D3191 Test Methods for Carbon Black in SBR \(Styrene-Butadiene Rubber\)—Recipe and Evaluation Procedures](#)

[D3192 Test Methods for Carbon Black Evaluation in NR \(Natural Rubber\)](#)

[D3265 Test Method for Carbon Black—Tint Strength](#)

[D3493 Test Method for Carbon Black—Oil Absorption Number of Compressed Sample \(COAN\)](#)

[D5230 Test Method for Carbon Black—Automated Individual Pellet Hardness](#)

[D6556 Test Method for Carbon Black—Total and External Surface Area by Nitrogen Adsorption](#)

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. The production should be made in one continuous production lot run. The testing called for in this practice is not intended to be a substitute for in-process quality control. This interlaboratory study is only adequate to verify the quality of a homogeneous lot.

4.2 The size of the lot is determined by historical records on the rate of use. The lot should have an expected life of 8 to 10 years at the most recent rate of use.

4.3 The black should be bagged in 50-lb polyethylene bags to reduce moisture incursion. Each pallet of bagged black should be wrapped in plastic to reduce environmental exposure. Depending on the size of the lot, the bagged black will be

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

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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.