



Standard Practice for Carbon Black, Pelleted—Reduction and Blending of Gross Samples¹

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1. Scope

1.1 This practice describes the procedure for the reduction of gross samples of pelleted carbon black to the appropriate size for testing and the procedure for blending of pelleted carbon black. These techniques are intended to minimize variations in measured characteristics between test samples. Standard terminology relating to carbon black samples is found in Terminology D 3053.

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 1799 Practice for Carbon Black—Sampling Packaged Shipments²
- D 1900 Practice for Carbon Black—Sampling Bulk Shipments²
- D 3053 Terminology Relating to Carbon Black²

3. Summary of Test Methods

3.1 Test Method A—Reduction of Sample Size:

3.1.1 The gross bulk sample is poured through the riffle sample splitter. A portion of the sample is reintroduced into the splitter as many times as necessary to reduce the gross sample to the size desired for the intended test portion. The test portion may not be homogeneous.

3.2 Test Method B—Blending of Carbon Black:

3.2.1 The gross sample is poured through the riffle sample splitter a minimum of four times in a specific sequence to prepare a homogeneous test portion. The black must be cross-blended to accomplish a homogeneous portion for testing.

4. Significance and Use

4.1 Several test methods for carbon black require the reduction in sample size or the blending of the test sample to reduce the variation of the measured characteristic. Other factors being equal, larger samples will tend to be more representative of the total supply. This practice provides procedures for reducing the large sample obtained from the bag and bulk sampling practices to a convenient size for conducting a number of tests to describe the material and measure its quality in such a manner that the smaller portion is most likely to be a representation of the bulk sample. Failure to follow the procedures in this practice could result in providing a nonrepresentative sample to be used in subsequent testing. Individual test methods provide for minimum amounts of material to be tested.

4.2 Test Method A, *Reduction of Sample Size*, is typically used to obtain an aliquot from a large sample, splitting a black into two or more equal portions, or reducing a blended black from Test Method B to a specified sample size. The final sample is always smaller than the original sample and would not be considered to be a “well blended” sample.

4.3 Test Method B, *Blending of Carbon Black*, is typically used to prepare a homogeneous sample. The homogeneous sample may be used for several tests (see Note 2) or may be reduced in size by Test Method A. The final sample size is the same as the original.

4.4 When a sample is to be blended and reduced, the sample should be blended (Test Method B) before reduction (Test Method A).

5. Apparatus

5.1 *Rifle Sample Splitter*³—Rifle type sample splitters shall have an even number of equal width chutes, but not less than a total of twelve, that discharge alternately to each side of the splitter. The chutes shall be 1.3 cm (1/2 in.) or less in width. The splitter shall be equipped with two receptacles to hold the two halves of the sample following splitting. It shall also be equipped with a hopper or straight-edged pan that has a width equal to or slightly less than the overall width of the assembly

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.

³ Humboldt Cat H-3980 and Tyler Cat S.S. 50 have been found satisfactory. Humboldt Cat H-3980 available from Humboldt Manufacturing Co., 7300 W. Agatite Ave., Norridge, IL 60656. Tyler Cat S.S. 50 available from C-E Tyler Combustion Engineering, Inc., 8200 Tyler Blvd., Mentor, OH 44060.