



Designation: D8644 – 25

Standard Practice for Recovered Carbon Black (rCB), Reduction, Blending, and Drying of Gross Samples for Testing¹

This standard is issued under the fixed designation D8644; 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 practice describes the procedure for the blending of recovered carbon black, the procedure for the reduction of gross samples of recovered carbon black to the appropriate size for testing and the preparation of the sample for testing. These techniques are intended to minimize variations in measured characteristics between test samples. Standard terminology relating to recovered carbon black samples is found in Terminology [D8178](#).

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, health, and environmental 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

[D1799 Practice for Carbon Black—Sampling Packaged Shipments](#)

[D1900 Practice for Carbon Black—Sampling Bulk Shipments](#)

[D8178 Terminology Relating to Recovered Carbon Black \(rCB\)](#)

[D8466 Guide for Recovered Carbon Black—Carbon Black Test Methods for Testing rCB](#)

3. Summary of Practice

3.1 *Practice A—Reduction of Sample Size*—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 *Practice B—Blending of Recovered Carbon Black using a Riffle Splitter*—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 gross sample must be cross blended to accomplish a homogeneous portion for testing.

3.3 *Practice C—Blending of Recovered Carbon Black by Manual Homogenization*—The gross sample is manually blended following a specific procedure to prepare a homogeneous test portion.

3.4 *Practice D—Drying of Recovered Carbon Black:*

3.4.1 Sample drying may or may not be required for the selected test method(s), including those carbon black test methods listed in Guide [D8466](#). Follow the drying instructions as given in the relevant recovered carbon black or carbon black test method(s).

3.4.2 See Terminology [D8178](#).

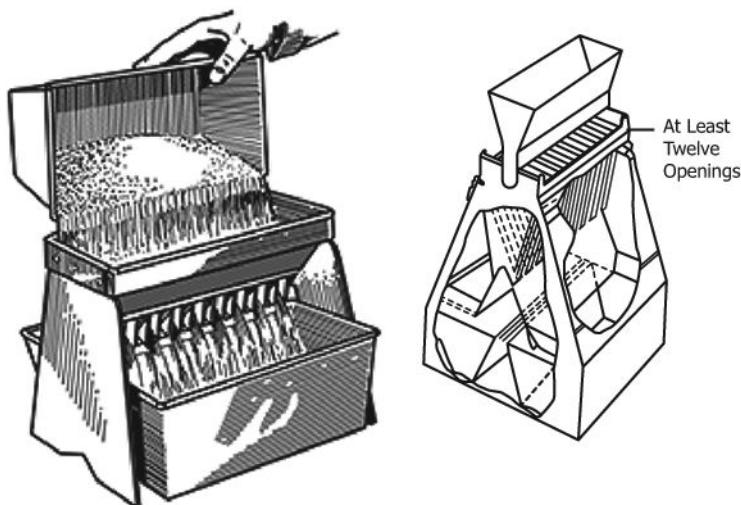
4. Significance and Use

4.1 Several test methods for recovered 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

¹ This practice is under the jurisdiction of ASTM Committee [D36](#) on Recovered Carbon Black (rCB) and is the direct responsibility of Subcommittee [D36.60](#) on Recovered 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 www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.



Note—May be constructed as either closed or open type.

FIG. 1 Riffle Sample Splitter

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 Practice A, *Reduction of Sample Size*, is typically used to obtain an aliquot from a large sample, splitting a recovered carbon black sample into two or more equal portions, or reducing a blended recovered carbon black sample from Practice 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 Practice B, *Blending of Recovered Carbon Black using a Riffle Splitter*, or Practice C, *Blending of Recovered Carbon Black by Manual Homogenization* is typically used to prepare a homogeneous sample. The final blended sample size is the same as the original unblended sample size. The homogeneous sample may be used for several tests (see [Note 2](#)) or may be reduced in size by Practice A.

4.4 When a sample is to be blended and reduced, the sample should be blended (Practices B or C) before reduction (Practice A). The blending and reduction must be done before the sample is dried (Practice D).

5. Apparatus

5.1 *Riffle Sample Splitter*³—Riffle 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 of chutes, by which the sample may be fed at a controlled rate to the chutes. The splitter and accessory equipment shall be so designed that the sample will flow smoothly without restriction or loss of material ([Fig. 1](#)).

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

5.3 *Desiccator*.

5.4 *Container with tight sealing lid*, large enough that the sample to be blended occupies a maximum of 50 % of the container’s volume.

5.5 *Spatula*, broad flat end approximately 2.5 to 7.5 cm (1 to 3 in.) wide and long enough to reach the bottom of the container.

6. Sampling

6.1 Samples shall be taken in accordance with Practice [D1799](#) or Practice [D1900](#).

7. Procedure

7.1 *Practice A—Reduction of Sample Size* ([Fig. 2](#)):

7.1.1 Place two empty pans under the riffle sample splitter.

7.1.2 Pour the gross sample through the riffle sample splitter.

NOTE 1—The gross sample is poured into the hopper and uniformly distributed from edge to edge, so that when it is introduced into the chutes, approximately equal amounts will flow through each chute. The rate at which the sample is introduced shall be such as to allow free flowing through the chutes into the receptacles below ([Fig. 1](#)).

7.1.3 Remove one of the pans from under the riffle sample splitter and replace with an empty pan. Pour the recovered carbon black from the pan that was removed into the hopper.

³ Humboldt Cat H-3980 and Tyler Cat S.S. 50 have been found satisfactory. They are available from, respectively, Humboldt Manufacturing Co., 7300 W. Agatite Ave., Norridge, IL 60656 and C-E Tyler Combustion Engineering, Inc., 8200 Tyler Blvd., Mentor, OH 44060. These are the only sources of supply of the apparatus known to the committee at this time. 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.