



Designation: D8632 – 26

Standard Classification for Recovered Carbon Black—rCB Used in Rubber Products¹

This standard is issued under the fixed designation D8632; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This classification covers the definition of types of recovered carbon black (rCB) for the use in rubber compounds.

1.2 *Units*—The values stated in SI units are to be regarded as the 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, 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

D8178 Terminology Relating to Recovered Carbon Black (rCB)

D8621 Test Methods for Recovered Carbon Black—Ash Content

D8653 Test Method for Recovered Carbon Black—Transmittance of Toluene Extract

3. Significance and Use

3.1 In accordance with Terminology **D8178**, recovered carbon black is defined as a semi-reinforcing filler derived from post-consumer rubber goods (feedstock) via a variety of thermal decomposition processes. This type of filler, predominantly consisting of carbon, also contains inorganic compound-

ing ingredients originating from the feedstock, but is free of wire and fabric. This classification facilitates the selection of a type of rCB for a specific application in rubber compounds.

4. Basis of Classification

4.1 This classification is based on two parameters: transmittance of toluene extract according to Test Method **D8653** and inorganic content measured according to Test Methods **D8621**.

4.1.1 The transmittance of the toluene extract is an estimate of toluene-soluble, organic residues that are present on the recovered carbon black.

4.1.2 The inorganic content of a recovered carbon black is the amount of inorganic, non-carbon components present after pyrolysis due to the inorganic content of the original feedstock.

4.2 The level of organic residues allows to differentiate between rCB products since it is directly related to pyrolysis production parameters irrespective of the feedstock. It can impact compliance regulations or substance risk classification in various global regions.

4.3 A high level of inorganic components might affect the reinforcement performance of the rCB product since the effective carbon content is reduced.

5. Classification System

5.1 The classification consists of the letter R indicating that the material is an rCB, a first number relating to a class of toluene transmittance, and a second number relating to a class of inorganic content.

5.2 For the determination of toluene transmittance according to Test Method **D8653**, a pre-filtering step with a coarse filter may be required before the final filtering with a pore size of 2 to 3 μm .

5.3 The rCB classification is defined in the following four non-equidistant ranges or bins shown in **Table 1**.

5.4 The inorganic content for the purpose of this classification is defined in three ranges or bins shown in **Table 2**.

5.5 Examples for the classification of rCB are presented below.

5.5.1 rCB with a toluene transmittance of 82 % and an inorganic content of 22 %: transmittance range 2 (80 to 94 %), inorganic content range 3 (more than 20 %) = R23.

¹ This classification is under the jurisdiction of ASTM Committee **D36** on Recovered Carbon Black (rCB) and is the direct responsibility of Subcommittee **D36.70** on rCB Testing in Rubber.

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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.