



Designation: D3053 – 23a

Standard Terminology Relating to Carbon Black¹

This standard is issued under the fixed designation D3053; 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 terminology covers a compilation of definitions of technical terms used in the carbon black and rubber industries. Terms that are generally understood or adequately defined in other readily available sources are not included.

1.2 *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

- 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
- D1511 Test Method for Carbon Black—Pellet Size Distribution
- D1513 Test Method for Carbon Black, Pelleted—Pour Density
- D1514 Test Method for Carbon Black—Sieve Residue
- D1566 Terminology Relating to Rubber
- D1618 Test Method for Carbon Black Extractables—Transmittance of Toluene Extract
- D1765 Classification System for Carbon Blacks Used in Rubber Products
- D1799 Practice for Carbon Black—Sampling Packaged Shipments
- D1900 Practice for Carbon Black—Sampling Bulk Shipments

- D1937 Test Method for Carbon Black, Pelleted—Mass Strength
- D2414 Test Method for Carbon Black—Oil Absorption Number (OAN)
- D2663 Test Methods for Carbon Black—Dispersion in Rubber
- D3265 Test Method for Carbon Black—Tint Strength
- D3493 Test Method for Carbon Black—Oil Absorption Number of Compressed Sample (COAN)
- D3849 Test Method for Carbon Black—Morphological Characterization of Carbon Black Using Electron Microscopy
- D5230 Test Method for Carbon Black—Automated Individual Pellet Hardness
- D6556 Test Method for Carbon Black—Total and External Surface Area by Nitrogen Adsorption
- D6602 Practice for Sampling and Testing of Possible Carbon Black Fugitive Emissions or Other Environmental Particulate, or Both
- D7854 Test Method for Carbon Black-Void Volume at Mean Pressure
- D8178 Terminology Relating to Recovered Carbon Black (rCB)

2.2 ISO Standards:³

- ISO 8887 Technical product documentation — Design for manufacturing, assembling, disassembling and end-of-life processing — Part 1: General concepts and requirements
- ISO 14044 Environmental management – Life cycle assessment – Requirements and guidelines

3. Terminology

3.1 Definitions:

aciniform, *adj*—shaped like a cluster of grapes.

DISCUSSION—The spheroidal primary particles of carbon black are fused into aggregates of colloidal dimension forming an aciniform morphology.

carbon black, *n*—an engineered material, primarily composed of elemental carbon, obtained from the partial combustion or thermal decomposition of hydrocarbons, existing as aggregates of aciniform morphology which are composed of

¹ This terminology is under the jurisdiction of ASTM Committee D24 on Carbon Black and is the direct responsibility of Subcommittee D24.41 on Carbon Black Nomenclature and Terminology.

Current edition approved Dec. 15, 2023. Published January 2024. Originally approved in 1972. Last previous edition approved in 2023 as D3053 – 23. DOI: 10.1520/D3053-23A.

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.

³ Available from International Organization for Standardization (ISO), ISO Central Secretariat, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, <https://www.iso.org>.