



Designation: D1765 – 23b

Standard Classification System for Carbon Blacks Used in Rubber Products¹

This standard is issued under the fixed designation D1765; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This classification system covers the classification of rubber-grade carbon blacks by the use of a four-character nomenclature system. The first character gives some indication of the influence of the carbon black on the rate of cure of a typical rubber compound containing the black. The second character gives information on the average surface area of the carbon black. The last two characters are assigned arbitrarily.

1.2 All rubber-grade carbon blacks for which a number is currently assigned at the time of publication of this classification system are listed in [Table 1](#) together with some of their typical properties. ASTM classification numbers (“N” or “S” designation) not listed in [Table 1](#) have either been withdrawn or are not currently assigned. The use of inactive or unassigned N or S designations is prohibited until such a time as the designation is officially reactivated or assigned by Subcommittee D24.41

1.3 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.4 *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.*

1.5 *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](#)

[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](#)

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

[D3053 Terminology Relating to Carbon Black](#)

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

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

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

[D7854 Test Method for Carbon Black-Void Volume at Mean Pressure](#)

3. Basis of Classification

3.1 The first character in the nomenclature system for rubber-grade carbon blacks is a letter indicating the effect of the carbon black on the cure rate of a typical rubber compound. The letter “N” is used to indicate a normal curing rate typical of furnace blacks that have received no special modification to alter their influence on the rate of cure of rubber. The letter “S” is used for channel blacks or for furnace blacks that have been modified to effectively reduce the curing rate of rubber. Channel blacks characteristically impart a slower rate of cure to rubber compounds. Thus, the letter “S” designates a slow cure rate. Carbon blacks may vary considerably in “curing rate” within each of the two letter classifications.

3.2 The second character in the system is a digit to designate the average surface area of the carbon black as measured by

¹ This classification system 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 1965. Last previous edition approved in 2023 as D1765 – 23a. DOI: 10.1520/D1765-23B.

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.