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## Standard Guide for Carbon Black—Shelf Life<sup>1</sup>

This standard is issued under the fixed designation D8043; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This guide defines the shelf life of carbon black.

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:*<sup>2</sup>

[D1509 Test Methods for Carbon Black—Heating Loss](#)

[D1510 Test Method for Carbon Black—Iodine Adsorption Number](#)

[D3192 Test Methods for Carbon Black Evaluation in NR \(Natural Rubber\)](#)

[D4821 Guide for Carbon Black—Validation of Test Method Precision and Bias](#)

[D6915 Practice for Carbon Black—Evaluation of Standard Reference Blacks](#)

### 3. Significance and Use

3.1 This guide defines the shelf life of carbon black when stored under proper conditions.

### 4. Carbon Black Shelf Life

4.1 In accordance with Practice [D6915](#), the shelf life of Standard Reference Blacks (SRBs) is defined as indefinite when stored in a manner that protects it from liquid water or high humidity environments. The only two properties of carbon black known to change over time are moisture (Test Methods [D1509](#)) and Iodine Number (Test Method [D1510](#)). The moisture content can change over the short-term (weeks or months), depending on the ambient humidity and the surface area of the carbon black, see [4.4](#). Iodine Number can change over an extended period (years) due to a slow increase in the oxygen content on the surface of the carbon black. This phenomenon is primarily observed with tread grades (~~NH00~~([N000](#) – [N300](#) series) and other high surface area carbon blacks, and manifests itself by a slowly decreasing Iodine Number, although the actual surface area of the carbon black remains unchanged. For more details about the aging effect on iodine number, see subsection 5.1.1 of Guide [D4821](#).

4.2 The same reasoning for the shelf life of SRBs extends to commercial carbon black. It should be noted that the slight change in Iodine Number over an extended period does not affect actual surface area properties and in-rubber performance of the carbon black.

<sup>1</sup> This guide is under the jurisdiction of ASTM Committee [D24](#) on Carbon Black and is the direct responsibility of Subcommittee [D24.67](#) on Sustainability. Current edition approved ~~June 1, 2020~~Dec. 15, 2023. Published ~~June 2020~~January 2024. Originally approved in 2016. Last previous edition approved in ~~2016~~2020 as ~~D8043—16~~D8043 – 20. DOI: ~~10.1520/D8043-20~~10.1520/D8043-23.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.