



Designation: D6085 – 97 (Reapproved 2022)

Standard Practice for Sampling in Rubber Testing—Terminology and Basic Concepts¹

This standard is issued under the fixed designation D6085; 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 covers a standardized terminology and some basic concepts for testing and sampling across the broad range of chemical and physical testing operations characteristic of the rubber and carbon black manufacturing industries.

1.2 In addition to the basic concepts and terminology, a model for the test measurement process is given in [Annex A1](#). This serves as a mathematical foundation for the terms and other testing concepts. It may also find use for further development of this practice to address more complex sampling operations.

1.3 This general topic requires a comprehensive treatment with a sequential or hierarchical development of terms with substantial background discussion. A number of ancillary terms are also given that make for a more self-contained document. This cannot be accommodated in Terminology [D1566](#).

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

[D1566 Terminology Relating to Rubber](#)

[D4483 Practice for Evaluating Precision for Test Method Standards in the Rubber and Carbon Black Manufacturing Industries](#)

[D5406 Practice for Rubber—Calculation of Producer's Process Performance Indexes](#)

3. Terminology

3.1 Definitions:

3.2 Despite the adoption of standard test methods, test result variation influences the data generated in all testing programs. As outlined in [Annex A1](#), there are two main categories: (1) variation inherent in the production process for a material or class of objects, and (2) variation due to the measurement operation itself. Each of these two sources may be further divided into two types of variation: (1) systematic or bias variation, and (2) random error variation. Both types can exist simultaneously for either of the main categories.

3.3 Random variation can be reduced to a low level by appropriate replication and sampling procedures, but bias variation cannot be so reduced. However, bias variation can be reduced or eliminated by comprehensive programs to sort out the causes of such perturbations and eliminate these causes.

3.4 Elementary Testing Terms:

3.4.1 *lot, n*—a specified mass of material or number of objects, generated by an identifiable process, with a recognized composition or property range.

3.4.1.1 *Discussion*—A lot is frequently generated by a common production process in a restricted time period and usually consists of a finite size or number. A lot may be a fractional part of a population (Interpretation 2 of *population*).

3.4.2 *material, n*—a specific entity that exists in bulk form (solid, powder, liquid).

3.4.2.1 *Discussion*—A material may or may not be homogeneous. Typical materials are individual rubbers, compounds, accelerators, carbon blacks, etc.

3.4.3 *object, n*—a discrete item or piece with a specified shape and size.

3.4.3.1 *Discussion*—Usually an object is an entity that is ready for testing. A typical object is an o-ring, dumbbell, pellet, or hose assembly.

¹ This practice is under the jurisdiction of Committee [D11](#) on Rubber and Rubber-like Materials and is the direct responsibility of Subcommittee [D11.16](#) on Application of Statistical Methods.

Current edition approved June 1, 2022. Published July 2022. Originally approved in 1997. Last previous edition approved in 2016 as D6085 – 97 (2016). DOI: 10.1520/D6085-97R22.

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.