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Standard Terminology Related to Multicomponent Textile Fibers[1]

This standard is issued under the fixed designation D4466; 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 Man-made polymers can be combined during manufacture, or natural polymers can be formed during growth, to produce multicomponent fibers having special properties such as cross dyeability, differential shrinkage, or bulk. This standard contains terms which can be used to describe the physical arrangement of components of such fibers. The schematic diagram in Annex A1 provides a guide for interpreting the terminology used in describing two- and three-component fibers, but is not intended to be limiting. Some examples of usage are given in Annex A2, and a bibliography of related literature is given in Appendix X1.

1.2 For definitions of other textile terms, refer to Terminology D123.

1.3 *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]

D123 Terminology Relating to Textiles

3. Terminology

Generic Class

generic class, *n*—as used with textile fibers, a grouping having similar chemical compositions or specific chemical characteristics.

DISCUSSION—In the United States, the generic names and definitions of man-made fibers, such as nylon, polyester, and acrylic, are published by the Federal Trade Commission in "Rules and Regulations Under the Textile Fiber Products Identification Act." Technically, fibers may be bigeneric, trigeneric, etc.

Components

polymer, *n*—a macromolecular material formed by the chemical combination of monomers having either the same or different chemical composition.

component, *n—as used with textile fiber polymers*, a polymer with distinguishable properties.

bicomponent fiber, *n*—a fiber consisting of two polymers which are chemically different or physically different, or both.

biconstituent fiber, *n*—deprecated term. Use the preferred term *bicomponent bigeneric fiber.*

DISCUSSION—As used in the Federal Trade Commission's "Rules and Regulations Under the Textile Fiber Products Identification Act," "biconstituent fiber" is "essentially a physical combination or mixture of two or more chemically distinct constituents or components combined at or prior to the time of extrusion, which if separately extruded, would fall within different ..." generic classes. In the preferred ASTM terminology, a biconstituent fiber is a bicomponent bigeneric fiber. It is not clear from the "Rules" whether a biconstituent fiber has a sheath-core, bilateral, or matrix configuration.

tricomponent fiber, *n*—a fiber consisting of three polymers which are chemically different, physically different, or any combination of such differences.

Physical Arrangement of Components

lateral, *adj*—a descriptive term for a textile fiber composed of two or more polymers at least two of which have a continuous longitudinal external surface.

sheath-core, *adj*—a descriptive term for a multicomponent textile fiber consisting of a continuous envelope which encases a continuous, central, internal region. (See also *component*.)

DISCUSSION—Both the sheath and the core can consist of more than one component arranged laterally, concentrically, or in matrix.

matrix, *adj*—a descriptive term for a textile fiber in which one or more polymeric fibrous material(s) is dispersed in another.

Order for Naming Multicomponent Fibers

1. Trademark.

[1] This terminology is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.58 on Yarns and Fibers.

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[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.

2. Physical arrangement of components: bilateral, matrix, sheath-core.

3. Number of components: bicomponent, tricomponent, etc.

4. Number of generic classes: monogeneric, bigeneric, trigeneric, etc.

5. Subparts 1 through 4 to be separated by commas.

6. Generic class(es): polyester, nylon, spandex, etc.

7. Makeup of generic classes:

(*a*) Generic class(es) in parentheses.

(*b*) For matrix structures—Generic classes to be separated by a hyphen.

(*c*) For lateral structures—Generic classes to be separated by a slash mark (/) (virgule).

(*d*) For sheath-core structures—Generic classes to be separated by a slash mark (/) (virgule).

(*e*) The generic class that is in the greatest quantity will be named first.

8. State the percentage of each generic class, based on percent of the total fiber weight, in square brackets following the generic class (optional).

9. Name the fiber in the form in which it is produced rather than after any subsequent treatment(s) that might separate the components.

5. Keywords

5.1 terminology; textile fibers

ANNEXES

(Mandatory Information)

A1. SCHEMATIC DIAGRAM

See Fig. A1.1