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.

Designation: D7391 – 17ε1

Standard Test Method for Categorization and Quantification of Airborne Fungal Structures in an Inertial Impaction Sample by Optical Microscopy[1]

This standard is issued under the fixed designation D7391; 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.

ε1 NOTE—Research report information added editorially in May 2017.

1. Scope

1.1 This test method is a procedure that uses direct microscopy to analyze the deposit on an inertial impaction sample.

1.2 This test method describes procedures for categorizing and enumerating fungal structures by morphological type. Typically, categories may be as small as genus (for example, *Cladosporium*) or as large as phylum (for example, basidiospores).

1.3 This test method contains two procedures for enumerating fungal structures: one for slit impaction samples and one for circular impaction samples. This test method is applicable for impaction air samples, for which a known volume of air (at a rate as recommended by the manufacturer) has been drawn, and is also applicable for blank impaction samples.

1.4 Enumeration results are presented in fungal structures/sample (fs/sample) and fungal structures/m^3 (fs/m^3).

1.5 The range of enumeration results that can be determined with this test method depends on the size of the spores on the sample trace, the amount of particulate matter on the sample trace, the percentage of the sample trace counted, and the volume of air sampled.

1.6 This test method addresses only the analysis of samples. The sampling process and interpretation of results is outside the scope of this test method.

1.7 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.8 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

1.9 *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]

D1193 Specification for Reagent Water

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

3. Terminology

3.1 *ASTM Definitions (see the ASTM Online Dictionary of Engineering Science and Technology*[3]):

3.1.1 *numerical aperture.*

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *circular impaction sample, n*—a sample of airborne particulate matter collected by means of a device that draws air through a round aperture at a specified rate, impacting the particles suspended in the air onto an adhesive medium, resulting in a circular area of deposition. A circular impaction sample may be collected by means of a cassette manufactured for that purpose, or by means of a sampling device that requires slides to be pre-coated with impaction medium.

3.2.2 *debris rating, n*—a distinct value assigned to an impactor sample based on the percentage of the sample area potentially obscured by particulate matter, and ranging from 0 to 5.

[1] This test method is under the jurisdiction of ASTM Committee D22 on Air Quality and is the direct responsibility of Subcommittee D22.08 on Sampling and Analysis of Mold.

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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.

[3] *ASTM Online Dictionary of Engineering Science and Technology* (Stock #: DEFONLINE) is available on the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org.

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