



Standard Test Method for Categorization and Quantification of Airborne Fungal Structures in an Inertial Impaction Sample by Optical Microscopy¹

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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, basidiomycetes).

1.3 This 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/m³ (fs/m³).

1.5 The range of enumeration results that can be determined with this 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 method addresses only the analysis of samples. The sampling process and interpretation of results is outside the scope of this 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.*

2. Referenced Documents

- 2.1 *ASTM Standards*:²
[D1193 Specification for Reagent Water](#)

3. Terminology

- 3.1 *ASTM Definitions (see ASTM Terminology Dictionary)* :
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 via 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.

3.2.3 *field blank, n*—a sample slide or cassette carried to the sampling site, exposed to sampling conditions (for example, seals opened), returned to the laboratory, treated as a sample, and carried through all steps of the analysis.

3.2.4 *hyaline, adj*—colorless.

3.2.5 *impaction medium, n*—a substance applied to a microscope slide used to collect (or capture) particulate matter during sampling.

3.2.6 *impaction sample, n*—a sample taken using impaction, for example, slit impaction sample, circular impaction sample.

3.2.7 *inertial impactor, n*—a device for collecting particles separated from an air stream by inertia to force an impact onto an adhesive surface. Inertial impactors are available in many

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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.