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: D7658 – 17

# Standard Test Method for Direct Microscopy of Fungal Structures from Tape[1]

This standard is issued under the fixed designation D7658; 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 test method uses optical microscopy for the detection, semi-quantification, and identification of fungal structures in tape lift preparations.

1.2 This test method describes the preparation techniques for tape-lift matrices, the procedure for confirming the presence of fungal structures, and the reporting of observed fungal structures

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

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 and health 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]

D1193 Specification for Reagent Water

D1356 Terminology Relating to Sampling and Analysis of Atmospheres

## 3. Terminology

3.1 *Definitions*—For definitions of other terms used in this test method, refer to Terminology D1356.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *fungal structure (sing.), n*—a collective term for a fragment- or groups of fragments from fungi, including but not limited to conidia, conidiophores, hyphae and spores.

3.2.2 *magnification/resolution combination 1, n*—~100–400× total magnification and a point to point resolution of 0.7 µm or better.

3.2.3 *magnification/resolution combination 2, n*— ~400× or greater total magnification and a point to point resolution of 0.5 µm or better.

3.2.4 *mounting medium, n*—a liquid, for example, lactic acid or prepared stain, used to immerse the sample particulate matter and to attach a cover slip to the sample.

3.2.5 *tape lift sample, n*—material lifted from a surface using clear, transparent, single sided, adhesive collection medium, typically tape or commercially available prepared slides.

## 4. Summary of Test Method

4.1 A tape lift sample is prepared.

4.2 The prepared sample is examined on an optical microscope for the presence, type and semi-quantification of fungal structures and reported.

## 5. Significance and Use

5.1 The significance of this test method is to standardize the analysis of the detection of removable fungal structures lifted from a surface with tape to improve consistency between laboratories and analysts.

5.2 This test method is intended to ensure consistent data to the end user.

5.3 Fungal structures are identified and semi-quantified regardless of whether they would or would not grow in culture.

5.4 It must be emphasized that the detector in this test method is the analyst, and therefore results are subjective, depending on the experience, training, qualification, optical acuity, and mental fatigue of the analyst.

5.5 This test method can be used to assess the presence and characteristics of fungal material on a surface.

## 6. Interferences

6.1 *Look-Alike Non-Fungal Particles*—Certain types of particles of non-fungal origin may resemble fungal structures.

[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.

Current edition approved March 1, 2017. Published April 2017. DOI: 10.1520/D7658-17.

[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.

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