NOTICE: This standard has either been superseded and replaced by a new version or discontinued. Contact ASTM International (www.astm.org) for the latest information.

Designation: G 21 – 96

Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi[1]

This standard is issued under the fixed designation G 21; 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 determination of the effect of fungi on the properties of synthetic polymeric materials in the form of molded and fabricated articles, tubes, rods, sheets, and film materials. Changes in optical, mechanical, and electrical properties may be determined by the applicable ASTM methods.

1.2 The values stated in SI units are to be regarded as the standard. The inch-pound units given in parentheses are for information only.

1.3 *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:*

D 149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Electrical Insulating Materials at Commercial Power Frequencies[2]

D 150 Test Methods for A-C Loss Characteristics and Permittivity (Dielectric Constant) of Solid Electrical Insulating Materials[2]

D 257 Test Methods for D-C Resistance or Conductance of Insulating Materials[2]

D 495 Test Method for High-Voltage, Low-Current, Dry Arc Resistance of Solid Electrical Insulation[2]

D 618 Practice for Conditioning Plastics for Testing[3]

D 638 Test Method for Tensile Properties of Plastics[3]

D 747 Test Method for Apparent Bending Modulus of Plastics by Means of a Cantilever Beam[3]

D 785 Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials[3]

D 1003 Test Method for Haze and Luminous Transmittance of Transparent Plastics[3]

D 1708 Test Method for Tensile Properties of Plastics by Use of Microtensile Specimens[3]

E 96 Test Methods for Water Vapor Transmission of Materials[4]

E 308 Practice for Computing the Colors of Objects by Using the CIE System[5]

2.2 *TAPPI Standard:*

Test Method T 451-CM-484 Flexural Properties of Paper[6]

2.3 *Federal Standards:*

FED STD 191 Method 5204 Stiffness of Cloth, Directional; Self Weighted Cantilever Method[7]

FED STD 191 Method 5206 Stiffness of Cloth Drape and Flex; Cantilever Bending Method[7]

3. Summary of Practice

3.1 The procedure described in this practice consists of selection of suitable specimens for determination of pertinent properties, inoculation of the specimens with suitable organisms, exposure of inoculated specimens under conditions favorable to growth, examination and rating for visual growth, and removal of the specimens and observations for testing, either before cleaning or after cleaning and reconditioning.

NOTE 1—Since the procedure involves handling and working with fungi, it is recommended that personnel trained in microbiology perform the portion of the procedure involving handling of organisms and inoculated specimens.

4. Significance and Use

4.1 The synthetic polymer portion of these materials is usually fungus-resistant in that it does not serve as a carbon source for the growth of fungi. It is generally the other components, such as plasticizers, cellulosics, lubricants, stabilizers, and colorants, that are responsible for fungus attack on plastic materials. It is important to establish the resistance to microbial attack under conditions favorable for such attack, namely, a temperature of 2 to 38°C (35 to 100°F) and a relative humidity of 60 to 100 %.

[1] This practice is under the jurisdiction of ASTM Committee G-3 on Durability of Nonmetallic Materialsand is the direct responsibility of Subcommittee G03.04on Biological Deterioration.

Current edition approved June 10, 1996. Published September 1996. Originally published as D 1924 – 61. Last previous edition D 1924 – 90. Redesignated G 21 in 1970 (Reapproved 1990).

[2] *Annual Book of ASTM Standards*, Vol 10.01.

[3] *Annual Book of ASTM Standards*, Vol 08.01.

[4] *Annual Book of ASTM Standards*, Vol 04.06.

[5] *Annual Book of ASTM Standards*, Vol 06.01.

[6] Available from Technical Association of the Pulp and Paper Industry, Technology Park/Atlanta, P.O. Box 105113, Atlanta, GA 30348.

[7] Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

Copyright © ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, United States.