



Standard Test Methods for Ability of Adhesive Films to Support or Resist the Growth of Fungi¹

This standard is issued under the fixed designation D4300; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 These test methods test the ability of adhesive films to inhibit or support the growth of selected fungal species growing on agar plates by providing means of testing the films on two agar substrates, one which promotes microbial growth, and one which does not.

1.2 These test methods are not appropriate for all adhesives. The activity of certain biocides may not be demonstrated by these test methods as a result of irreversible reaction with some of the medium constituents.

NOTE 1—As an example, quaternary ammonium compounds are inactivated by agar.

1.3 A test method is included for use with low-viscosity adhesives along with an alternative method for use with mastic-type adhesives. Also, a method approved by the government is given.

1.4 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.5 *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.* These test methods are designed to be used by persons trained in correct microbiological techniques. Specific precautionary statements are given in Section 7 and in 14.3.2.

2. Referenced Documents

- 2.1 *ASTM Standards*:²
[D907 Terminology of Adhesives](#)

¹ These test methods are under the jurisdiction of ASTM Committee D14 on Adhesives and are the direct responsibility of Subcommittee D14.30 on Wood Adhesives.

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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.

[D1286 Method of Test for Effect of Mold Contamination on Permanence of Adhesives Preparations and Adhesives Bonds](#) (Withdrawn 1983)³

[G21 Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi](#)

2.2 *TAPPI Method*:

[T487 Fungus Resistance for Paper and Paperboard](#)⁴

3. Terminology

3.1 *Definitions*—Many terms in this test method are defined in Terminology [D907](#).

3.2 *Definitions of Terms Specific to This Standard*:

3.2.1 *adhesive preparation, n*—the adhesive as packaged for distribution, storage, and use.

3.2.2 *adhesive film, n*—the small portion of the adhesive preparation, as prepared for use by the consumer, either with additives or as received, which is cast on a substrate, cured 24 h, and represents the glue line.

3.2.2.1 *Discussion*—For purposes of these test methods the *adhesive film* is the thin layer of adhesive spread on either the 21-mm fiberglass disk as described in 14.2, or the adhesive layer 3 mm thick which is cast on the tile squares as described in 15.1.

3.2.3 *zone of inhibition, n*—the area on an inoculated agar plate surrounding the adhesive-coated disk or tile, showing a reduced fungal growth or an absence thereof.

3.3 *Abbreviations*:

3.3.1 *PDA*—potato dextrose agar.

3.3.2 *MSA*—mineral salts agar.

3.3.3 *ZI*—zone of inhibition.

4. Significance and Use

4.1 These test methods are designed to be used to determine the susceptibility of the adhesive film to biodegradation and whether the adhesive will carry into the bond line sufficient

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from Technical Association of the Pulp and Paper Industry (TAPPI), 15 Technology Parkway South, Norcross, GA 30092, <http://www.tappi.org>.