Designation: D1183 – 03 (Reapproved 2019)

Standard Practices for Resistance of Adhesives to Cyclic Laboratory Aging Conditions[1]

This standard is issued under the fixed designation D1183; 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 practices cover the determination of the resistance of adhesives to cyclic accelerated service conditions by exposing bonded specimens to conditions of high and low temperatures and high and low relative humidities. The extent of degradation is determined from changes in strength properties as a result of exposure to the test conditions (Note 1). It is recognized that no accelerated procedure for degrading materials correlates perfectly with actual service conditions, and that no single or small group of laboratory test conditions will simulate all actual service conditions. Consequently, care must be exercised in the interpretation and use of data obtained in this practice. The test condition, the number of cycles of the test condition to be used, the particular strength property to be used to determine the extent of degradation, and whether test specimens or test panels are to be used, are specified in the material specification.

NOTE 1—These practices/conditions are intended for use with specimens described in the approved ASTM strength test methods for adhesives as follows:

Test Methods D897, D903, D906, D950, D1002, D1062, and Test Method D1344.

1.2 The values stated in SI units are to be regarded as the standard.

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

1.4 *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]

D897 Test Method for Tensile Properties of Adhesive Bonds

D903 Test Method for Peel or Stripping Strength of Adhesive Bonds

D906 Test Method for Strength Properties of Adhesives in Plywood Type Construction in Shear by Tension Loading

D907 Terminology of Adhesives

D950 Test Method for Impact Strength of Adhesive Bonds

D1002 Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal)

D1062 Test Method for Cleavage Strength of Metal-to-Metal Adhesive Bonds

D1141 Practice for the Preparation of Substitute Ocean Water

D1344 Test Method for Testing Cross-Lap Specimens for Tensile Properties of Adhesives (Withdrawn 1985)[3]

3. Terminology

3.1 *Definitions*—Many terms in these practices are defined in Terminology D907.

4. Significance and Use

4.1 These practices provide information on the resistance to cyclic laboratory aging.

5. Apparatus

5.1 *Circulating Air Ovens,* capable of being controlled at the required temperatures.

5.2 *Rooms, Cabinets, or Desiccators,* with means for controlling the relative humidity of the air in them at the required values.

[1] These practices are under the jurisdiction of ASTM Committee D14 on Adhesives and are the direct responsibility of Subcommittee D14.80 on Metal Bonding 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.

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