Designation: D 2095 – 96 (Reapproved 2002)

Standard Test Method for Tensile Strength of Adhesives by Means of Bar and Rod Specimens[1]

This standard is issued under the fixed designation D 2095; 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 covers the determination of the relative tensile strength of adhesives by the use of bar- and rod-shaped butt-joined specimens under defined conditions of preparation, conditioning, and testing. This test method is applicable to the testing of adhesives with various adherend materials in either similar or dissimilar combinations.

NOTE 1—An alternative test method for determining the tensile strength of adhesives is Test Method D 897.

1.2 The values stated in SI units are to be regarded as the standard. The values 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 897 Test Method for Tensile Properties of Adhesive Bonds[2]

D 907 Terminology of Adhesives[2]

D 2094 Practice for Preparation of Bar and Rod Specimens for Adhesion Tests[2]

E 4 Practices for Force Verification of Testing Machines[3]

E 6 Terminology Relating to Methods of Mechanical Testing[3]

E 104 Practice for Maintaining Constant Relative Humidity by Means of Aqueous Solutions[4]

3. Terminology

3.1 Many of the terms in this standard are defined in Terminology D 907.

3.2 *Definition of Term Specific to This Standard:*

3.2.1 *tensile strength of an adhesive*—the maximum tensile stress which it is capable of sustaining. Tensile strength is calculated from the maximum load during a tension test carried to rupture and the original cross-sectional area of the specimen (see Terminology E 6).

4. Significance and Use

4.1 Tension tests provide reasonably accurate information with regard to the tensile strength of adhesives. Tensile strength data may be suitable for specification acceptance, service evaluation, manufacturing control, research, and development. Tension tests are not considered significant for applications differing from the test in rate, direction, and type of loading.

5. Apparatus

5.1 *Testing Machine*—A testing machine capable of maintaining a specified rate of loading, with the error for indicated loads that are to be measured not exceeding ±1 % and the load-indicating mechanism essentially free of inertial lag at a specified rate of loading. Verify the accuracy of the testing machine in accordance with Practices E 4. Ensure that the testing machine is provided with the following:

5.1.1 *Fixed Member*—A fixed or essentially stationary member carrying one attachment fixture.

5.1.2 *Movable Member*—A movable member carrying a second attachment fixture.

5.1.3 *Attachment Fixtures*—Self-aligning type fixtures for holding a specimen between the fixed member and the movable member. Ensure that the fixtures are attached to the fixed and movable members in such a way that they will move into alignment as soon as load is applied, so that the long axis of the test specimen will coincide with the direction of the applied load. A design for fixtures that has proven satisfactory is shown in Fig. 1 and Fig. 2.

[1] This test method is under the jurisdiction of ASTM Committee D14 on Adhesives and is the direct responsibility of Subcommittee D14.80 on Metal Bonding Adhesives.

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[2] *Annual Book of ASTM Standards,* Vol 15.06.

[3] *Annual Book of ASTM Standards,* Vol 03.01.

[4] *Annual Book of ASTM Standards,* Vol 11.03.