



Designation: ~~D5868-95~~ Designation: D 5868 – 01 (Reapproved 2008)

Standard Test Method for Lap Shear Adhesion for Fiber Reinforced Plastic (FRP) Bonding¹

This standard is issued under the fixed designation D 5868; 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 describes a lap shear test for use in measuring the bonding characteristics of adhesives for joining fiber reinforced plastics to themselves and to metals. The method is applicable to random and fiber oriented FRP.

1.2 This test method is intended to complement Test Method D 1002 and extend the application to single-lap shear adhesive joints of fiber-reinforced plastic (FRP) adherends. This test method is useful for generating comparative apparent shear strength data for joints made from a number of FRP materials, providing a means by which FRP surface treatments may be compared.

~~1.3 The values stated in inch-pound units are to be regarded as the standard. The SI values in parentheses are for information only.~~

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered 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.*

2. Referenced Documents

2.1 ASTM Standards:²

~~D1002 Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal)~~ 907 Terminology of Adhesives

~~D2093 Practice for Preparation of Surfaces of Plastics Prior to Adhesive Bonding~~² 1002 Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal)

~~D3163 Test Method for Determining the Strength of Adhesively Bonded Rigid Plastic Lap-Shear Joints in Shear by Tension Loading~~² 2093 Practice for Preparation of Surfaces of Plastics Prior to Adhesive Bonding

~~D4896 Guide for Use of Adhesive-Bonded Single Lap-Joint Specimen Test Results~~² 3163 Test Method for Determining Strength of Adhesively Bonded Rigid Plastic Lap-Shear Joints in Shear by Tension Loading

~~D907 Terminology of Adhesives~~² 4896 Guide for Use of Adhesive-Bonded Single Lap-Joint Specimen Test Results

D 5573 Practice for Classifying Failure Modes in Fiber-Reinforced-Plastic (FRP) Joints

E 4 Practices for Force Verification of Testing Machines

2.2 SAE Standard:

SAE J1525 Lap Shear Test for Automotive-Type Adhesives for Fiber Reinforced Plastic (FRP) Bonding³

3. Terminology

3.1 Adhesive terminology for this test method is covered in Terminology D 907.

4. Summary of Test Method

4.1 This test method describes a procedure for the testing of lap shear bond strengths, using composite materials not recommended in Test Method D 3163 such as FRP.

¹ This test method is under the jurisdiction of ASTM Committee D-14 and is the direct responsibility of Subcommittee D14.40 on Adhesives for Plastics. Current edition approved Dec. 10, 1995. Published February 1996.

¹ This test method is under the jurisdiction of ASTM Committee D14 on Adhesives and is the direct responsibility of Subcommittee D14.40 on Adhesives for Plastics. Current edition approved April 1, 2008. Published April 2008. Originally approved in 1995. Last previous edition approved in 2001 as D 5868 - 01.

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*, Vol 15.06, volume information, refer to the standard's Document Summary page on the ASTM website.

³ Annual Book of ASTM Standards, Vol 03.01.

³ Available from Society of Automotive Engineers (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, <http://www.sae.org>.