



Designation: D 6862 – 03

Standard Test Method for 90 Degree Peel Resistance of Adhesives¹

This standard is issued under the fixed designation D 6862; 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.

INTRODUCTION

The purpose of this test method is to provide for the determination of the peel strength of adhesives when surfaces joined by an adhesive are separated by applying a force to one of the surfaces at a 90 degree angle. The accuracy of the results of strength tests of adhesive bonds will depend on the conditions under which the bonding process is carried out. Unless otherwise agreed upon between the manufacturer and the purchaser, the bonding conditions shall be prescribed by the manufacturer of the adhesive. In order to ensure that complete information is available to the individual conducting the tests, the manufacturer of the adhesive shall furnish numerical values and other specific information for each of the following variables:

(1) Procedure for preparation of the surfaces prior to application of the adhesive, the cleaning and drying of surfaces, and special surface treatments, which are not specifically limited by the pertinent test method.

(2) Complete mixing directions for the adhesive.

(3) Conditions for the application of the adhesive, including the rate of spread or thickness of the film, number of coats to be applied, whether to one or both of the surfaces, and the conditions of drying.

(4) Assembly conditions before the application of pressure, including room temperature and length of time.

(5) Curing conditions, including the amount of pressure to be applied, the length of time under pressure, and the temperature of the assembly when under pressure. It should be stated whether this temperature is that of the glue line or of the atmosphere at which the assembly is to be maintained.

(6) Conditioning procedure before testing, unless a standard procedure is specified, including length of time and relative humidity.

A range may be prescribed for any variable provided it is acceptable to both the manufacturer and the purchaser of the adhesive.

1. Scope

1.1 This test method covers the determination of the relative peel strength of an adhesive bond between one rigid adherend and one flexible adherend when tested at an angle of approximately 90 degrees under specified conditions of preparation and testing.

1.2 A variation in thickness of the adherends will generally influence test values. For this reason, the thickness of the

adherends used to make the test specimens shall be specified in the material specification. When no thickness is specified, the flexible adherend shall be 0.63 mm (0.025 in.) thick and the rigid adherend shall be 1.63 mm (0.064 in.) thick.

NOTE 1—A heavy fabric, such as canvas, has been used as a flexible adherend.

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

¹This test method is under the jurisdiction of ASTM Committee D14 on Adhesives and is the direct responsibility of Subcommittee D14.10 on Working Properties.

Current edition approved April 10, 2003. Published May 2003.

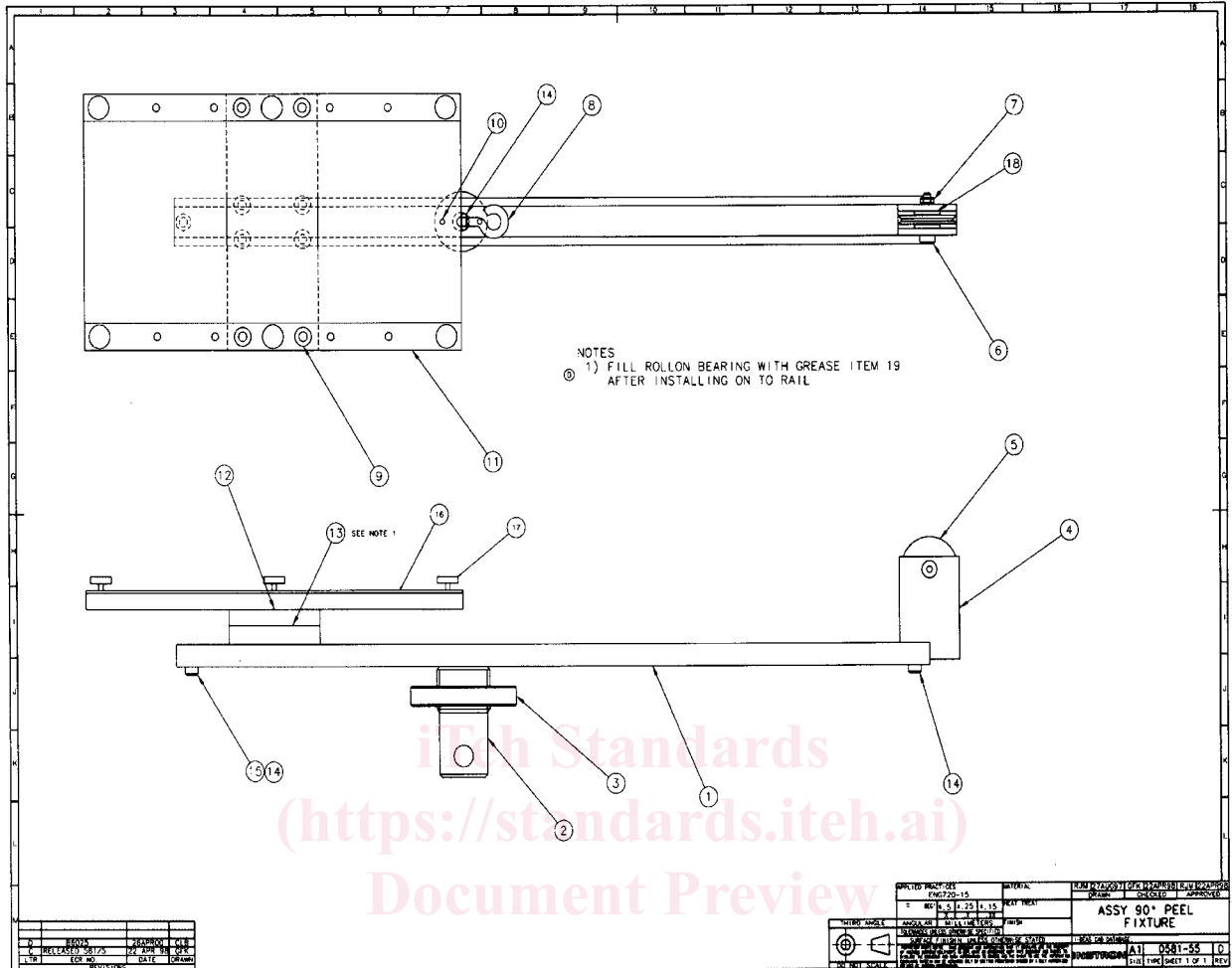


FIG. 1 Sample Test Apparatus

<https://standards.iteh.ai/catalog/standards/sist/aec32eb2-343a-4699-a824-356cbe7ce58a/astm-d6862-03>

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:
 - D 907 Terminology of Adhesives²
 - E 4 Practices for Force Verification of Testing Machines³

3. Terminology

3.1 Definitions—Many of the definitions used in this test method are defined in Terminology D 907.

4. Summary of Test Method

4.1 This test method consists of testing laminated or bonded adherends, where one adherend is rigid and the other adherend is flexible, by peeling of the flexible adherend from the rigid

adherend at a 90 degree angle of peel using the test fixture shown in Fig. 1 or an equivalent fixture that will perform the same function.

5. Significance and Use

5.1 This test method is useful for acceptance and quality control testing. Adherends, application procedure, and sample conditioning shall be as agreed upon by the manufacturer and the user of the adherends and the adhesive.

6. Apparatus

6.1 *Testing Machine*—The testing machine shall have a load weighing system conforming to the requirements of Practice E 4. It shall have the capability of constant Rate of Extension (CRE) with a crosshead speed range of 12.5 mm/min (0.5 in./min) to 254 mm/min (10 in./min). The testing machine shall have an adequate pen or computer response to record the force-extension curve. Self-aligning grips shall be used to hold the flexible adherend. The breaking load shall fall between 15 and 85 % of the full scale load range. The grips need to engage the outer 25.4 mm (1 in.) of the flexible adherent firmly and, when load is applied, the direction of the applied force needs to be through the center line of the grip assembly.

² Annual Book of ASTM Standards, Vol 15.06.
³ Annual Book of ASTM Standards, Vol 03.01.