
**Adhesives — Determination of tensile
lap-shear strength of rigid-to-rigid
bonded assemblies**

*Adhésifs — Détermination de la résistance au cisaillement
d'assemblages collés rigide sur rigide à recouvrement simple*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4587 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 11, *Products*.

This third edition cancels and replaces the second edition (ISO 4587:1995), which has been technically revised.

Adhesives — Determination of tensile lap-shear strength of rigid-to-rigid bonded assemblies

1 Scope

This International Standard specifies a method for determining the tensile lap-shear strength of rigid-to-rigid bonded assemblies using a standard specimen under specified conditions of preparation and testing. This test procedure does not provide design information.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 291:1997, *Plastics — Standard atmospheres for conditioning and testing*

ISO 527-1:1993, *Plastics — Determination of tensile properties — Part 1: General principles*

ISO 10365:1992, *Adhesives — Designation of main failure patterns*

EN 13887:—¹⁾, *Structural adhesives — Guidelines for surface preparation of metals and plastics prior to adhesive bonding*

3 Principle

Adhesive lap-shear bond strength is determined by stressing a single overlap joint between rigid adherends in shear by the application of a tensile force parallel to the bond area and to the major axis of the specimen.

NOTE 1 Single-lap specimens are economical, practical and easy to make. They are the most widely used specimens for development, evaluation and comparative studies involving adhesives and bonded products, including manufacturing quality control.

NOTE 2 The strength values obtained from the single-lap specimen should not be used as allowable design-stress values for structural joints.

4 Apparatus

4.1 Tensile-testing machine, selected so that the rupture of the specimen falls between 10 % and 80 % of the full-scale capacity. The response time of the machine shall be short enough so as to enable the force applied at the time of rupture to be measured accurately. The recorded force shall not differ from the true applied force by more than 1 %. The machine shall be capable of maintaining the constant speeds of testing specified in Clause 7 (see ISO 527-1). A machine which allows a constant rate of load application may be

1) To be published.