

INTERNATIONAL STANDARD

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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*



Reference number
ISO 4587:1995(E)

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.

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.

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

This second edition cancels and replaces the first edition (ISO 4587:1979), which has been technically revised.

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International Organization for Standardization
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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 when tested using a standard specimen and under specified conditions of preparation and testing.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 291:1977, *Plastics — Standard atmospheres for conditioning and testing*.

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

ISO 4588:—¹⁾, *Adhesives — Guidelines for the preparation of metal surfaces for adhesive bonding*.

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

ISO 13895:—²⁾, *Adhesives — Guidelines for the surface preparation of plastics*.

1) To be published. (Revision of ISO 4588:1989)

2) To be published.

3 Principle

The 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.

NOTES

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.

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

4 Apparatus

4.1 Testing machine, so selected 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). It shall be provided with a suitable pair of self-aligning grips to hold the specimen. The grips and attachments shall be so constructed that they will move into alignment with the specimen as soon as the load is applied, so that the long axis of the specimen will coincide with the direction of the applied force through the centreline of the grip assembly.