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Adhesives — Wood-to-wood adhesive bonds — Determination of shear strength by tensile loading

Adhésifs — Joints collés de bois à bois — Détermination de la résistance au cisaillement par effort de traction

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Foreword

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html

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

This third edition cancels and replaces the second edition (ISO 6237:2003), which has been technically revised.

Adhesives — Wood-to-wood adhesive bonds — Determination of shear strength by tensile loading

1 Scope

This document specifies a method for determining the shear strength of wood-to-wood adhesive bonds, with a standard specimen loaded in tension and under specified conditions of preparation, conditioning and testing. This method is intended for testing only those adhesives used in bonding wood to wood in either parallel-laminated or cross-laminated construction.

This method is not intended for use in testing manufactured products.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 472, *Plastics — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 472 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

4 Apparatus

4.1 Apparatus for preparation of adhesive

4.1.1 Balance and **equipment** capable of measuring the proportions of the adhesive mix to within a tolerance of ±1 %.

4.1.2 Mixing equipment to ensure homogeneous mixing of the constituents with minimum aeration of the adhesive (except foamed adhesive).

4.1.3 Spreading equipment such as a **wire-wound bar**, **roller spreader**, **curtain coater** or **suitable hand applicators**, capable of spreading the adhesive uniformly within ±5 % of the desired thickness.

4.1.4 Equipment, designed to exert the required pressure evenly over the whole bonded area within ± 5 % of the desired value, for example a **press** or **clamps**. If necessary, **heated platens** capable of maintaining the prescribed temperature within ±2 °C during pressing.

4.2 Test apparatus

4.2.1 Analytical balance.

4.2.2 Linear measuring device, to read to 0,05 mm, e.g. vernier calipers or micrometer.

4.2.3 Test machine, capable of exerting a tensile force of at least 5 kN with an accuracy of ±2 %. The force shall be applied at a uniformly increasing rate in the range 2,5 kN/min to 6 kN/min or at a uniform crosshead speed between 0,5 mm/min and 1,0 mm/min unless otherwise agreed between the interested parties.

The test machine shall be equipped with suitable grips and jaws so that the specimen is held tightly without slipping during testing and is held in alignment so that the stress is applied as required in Clause 9.

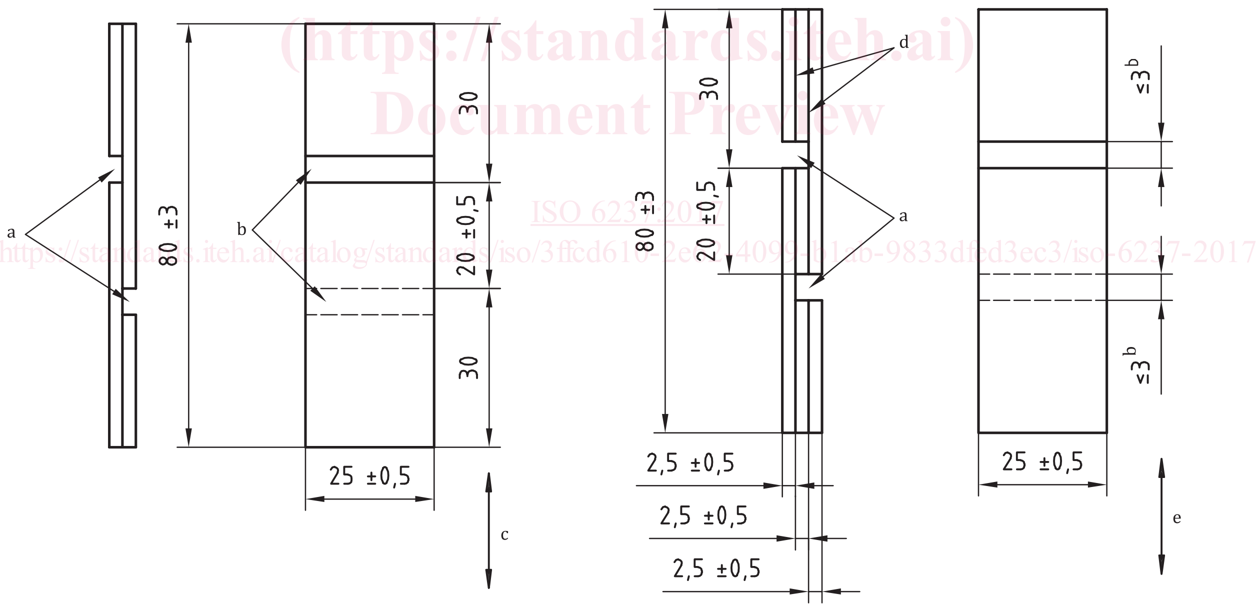
It is necessary for all equipment, including gauges, thermometers, etc., to be calibrated regularly, as prescribed by the test authority of each country.

5 Test specimens

5.1 The timber species, timber quality and timber moisture content for the specimens shall be as described in Annex B.

5.2 The test specimen shall be of a two-ply or three-ply construction and shall conform to the form and dimensions shown in Figures 1 and 2. The test specimens shall be cut from test panels prepared as described in this clause and Clause 6.

Dimensions in millimetres



a) Two-ply tensile shear specimen **b) Three-ply tensile shear specimen**

Key

a Cut up to but not beyond glue line.

b Width of sawcut.

c Direction of grain of both veneers.

d Glue lines.

e Direction of grain of face veneers (direction of grain of central veneer shall be at right angles to grain of two face veneers).

Figure 1 — Test specimens

