



SLOVENSKI STANDARD

SIST EN 1966:2009

01-maj-2009

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SIST EN 1966:2003

?cbglfi _Vj'g_U`Yd]U!'CdfYXY]Hj `dcj fy]bY'n'a Yf^b^Ya `cdf]^Ya Udc`a YtcX]
kf]tc _cj bY[Ui dc[]VU

Structural adhesives - Characterization of a surface by measuring adhesion by means of the three point bending method

Strukturklebstoffe - Charakterisierung einer Oberfläche durch Messung der Adhäsion nach dem Dreipunkt-Biegeverfahren

Adhésifs structuraux - Caractérisation d'une surface par mesure de l'adhérence au moyen de la méthode de la flexion en trois points

Ta slovenski standard je istoveten z: EN 1966:2009

ICS:

83.180 Lepila Adhesives

SIST EN 1966:2009 en,fr,de

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EUROPEAN STANDARD

EN 1966

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EUROPÄISCHE NORM

February 2009

ICS 83.180

Supersedes EN 1966:2002

English Version

Structural adhesives - Characterization of a surface by measuring adhesion by means of the three point bending method

Adhésifs structuraux - Caractérisation d'une surface par mesure de l'adhérence au moyen de la méthode de la flexion en trois points

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This European Standard was approved by CEN on 27 December 2008.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 1966:2009) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by AENOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2009, and conflicting national standards shall be withdrawn at the latest by August 2009.

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

This document supersedes EN 1966:2002.

SAFETY STATEMENT — Persons using this document should be familiar with the normal laboratory practice, if applicable. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any regulatory conditions.

ENVIRONMENTAL STATEMENT — It is understood that some of the material permitted in this standard may have negative environmental impact. As technological advantages lead to acceptable alternatives for these materials, they will be eliminated from this standard to the extent possible.

At the end of the test, the user of the standard shall take care to carry out an appropriate disposal of the wastes, according to local regulation.

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According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

EN 1966:2009 (E)**1 Scope**

This European Standard describes a test method to determine ability of a cured adhesive (possibly with a primer) to adhere to a substrate which has had a certain surface finish or with a specific surface preparation by using the "three point bending method".

It is only used for quality assurance and the substrate should be rigid or resistant enough to bending such as steel or aluminium alloys. For other substrates the thickness should be adjusted to the modulus of elasticity or a suitable stiffener should be used.

The adhesive should be polymerisable (curable) without pressure in order to obtain the thickness needed to provide sufficient rigidity, otherwise, a bonded reinforcing piece of the same type and same thickness as the substrate can be substituted for the bloc of adhesive.

It is not suitable for film adhesives.

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.

EN 923:2005, *Adhesives — Terms and definitions*

EN 10025-2, *Hot rolled products of structural steels - Part 2: Technical delivery conditions for non-alloy structural steels*

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

EN ISO 291, *Plastics — Standard atmospheres for conditioning and testing (ISO 291:2005)*

EN ISO 9142, *Adhesives — Guide to the selection of standard laboratory ageing conditions for testing bonded joints (ISO 9142:2003)*

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

ISO 286-1, *ISO system of limits and fits — Part 1: Bases of tolerances, deviations and fits*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 923:2005 and the following apply.

3.1 interfacial zone
zone where the physical, chemical and mechanical properties are different from those of substrate, the adhesive or any coating applied before bonding



Figure 1 — Schematic diagram of interfacial region

4 Principle

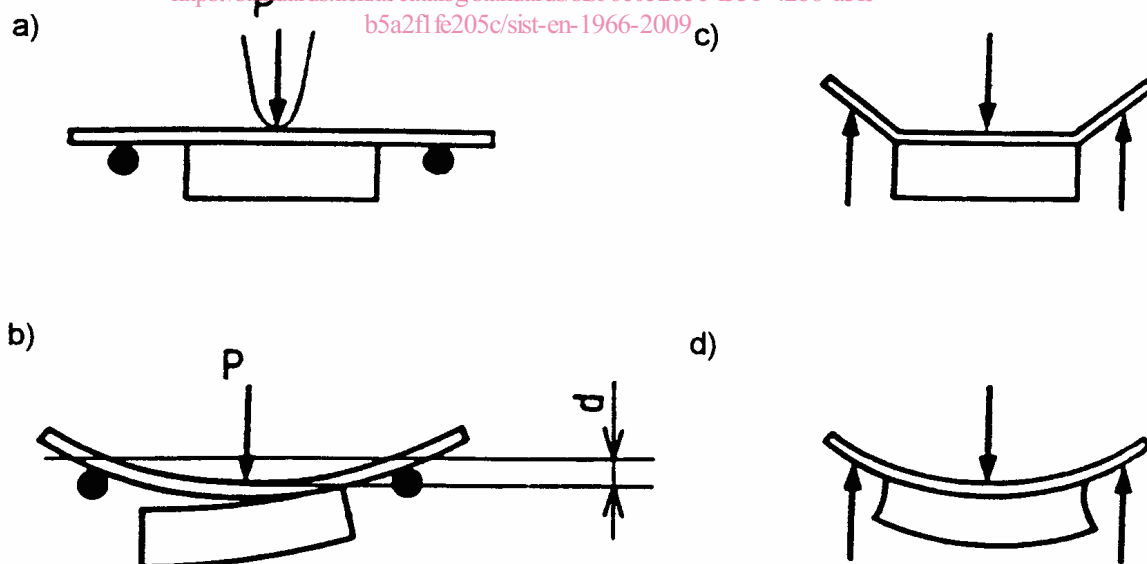
A test piece consisting of two materials, the substrate and the adhesive, shall be subjected to bending.

The test pieces used shall have only a single substrate/polymer interfacial region.

The adhesive shall be moulded in the centre of the substrate in the form of a parallelepiped block which, when subjected to bending, generates a discontinuity in rigidity (see Figure 2). This leads to the initiation of a fracture in the interfacial region, at the edge of the block adhesive, chiefly as a result of the adhesive pull strength perpendicular to the plane of bonding.

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Key

- a) test piece before stress
- b) failure in the interfacial zone during the test
- c) no failure owing to rigidity or to inadequate strength of the support
- d) no failure owing to inadequate rigidity of the adhesive

Figure 2 — Principle of test

EN 1966:2009 (E)

The values for maximum force and displacement or for the clear space (see Figure 9) subtended at the initiation of fracture shall characterise adhesion.

As a general rule, the adhesive shall be sufficiently rigid for adhesion to be measured at the level of the interfacial zone.

5 Apparatus**5.1 Test piece preparation apparatus****5.1.1 Device for moulding the adhesive**

This consists of three elements:

in the lower part, an aluminium alloy plate (Figure 3) in which substrate seatings are positioned at regular intervals

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Dimensions in millimetres

General tolerance (tolerance 7 in accordance with ISO 286-1)

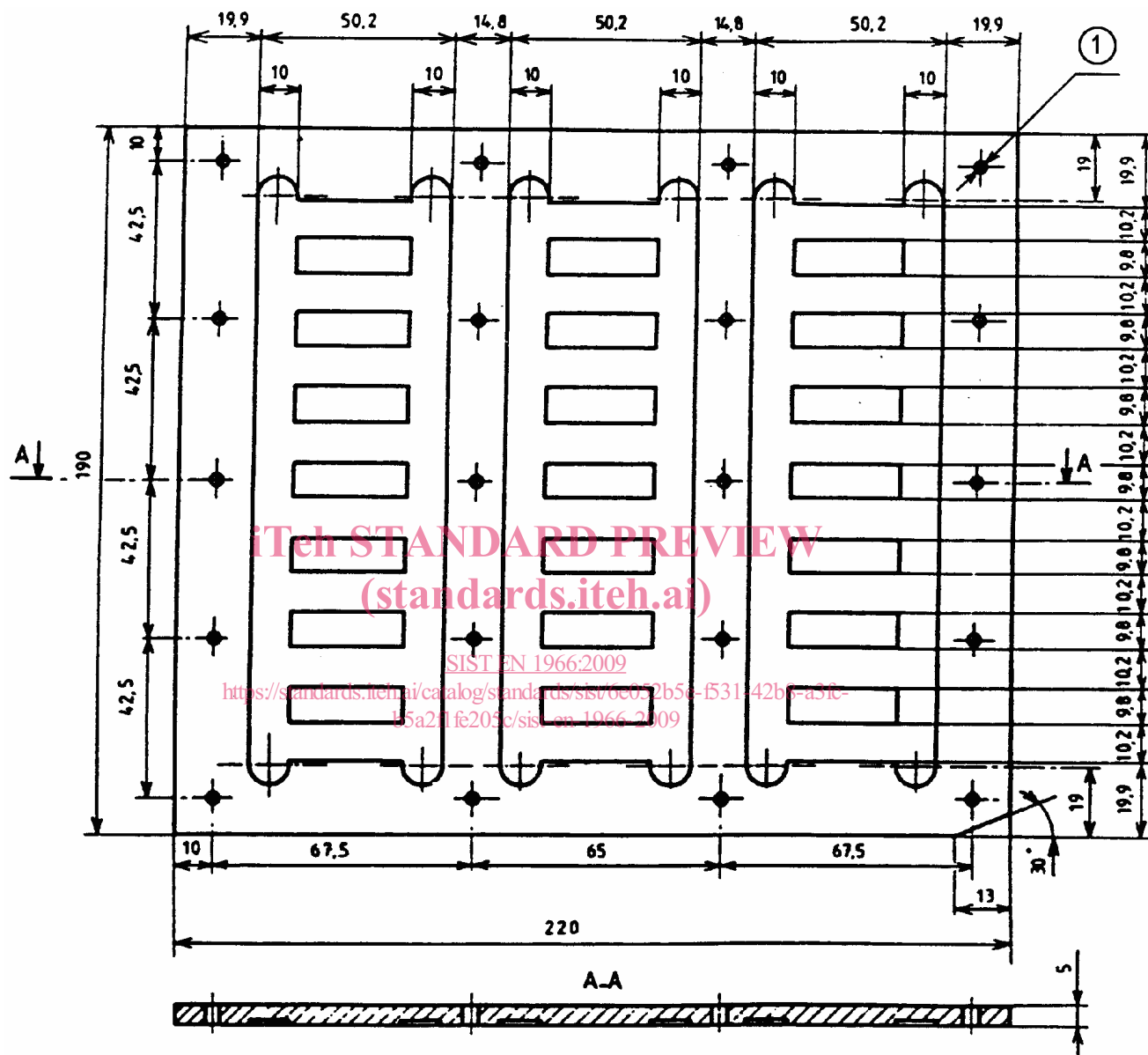


Figure 3 — Lower plate

in the centre, a silicone rubber mould consisting of cells, with dimensions equal to those of the blocks of adhesive facing the substrate positions, and obtained from a reciprocal form (Figure 4).