SLOVENSKI STANDARD
SIST ENV 1966:1998

01-februar-1998

Konstrukcijska lepila - Opredelitev površine z merjenjem oprijema po metodi tritočkovnega upogiba

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'adhésion au moyen de la méthode de la flexion en trois points

Ta slovenski standard je istoveten z: **ENV 1966:1995**

ICS:

25.220.20	Površinska obdelava	Surface treatment
83.180	Lepila	Adhesives

SIST ENV 1966:1998 **en**

EUROPEAN PRESTANDARD

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English version

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Prestandard has been prepared by the Technical Committee CEN/TC 193 "Adhesives", of which the secretariat is held by AFNOR.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to announce this European Prestandard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Contents

1 Scope

This European prestandard 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 must be rigid or resistant enough to bending such as steel or aluminium alloys. For other substrates the thickness has to be adjust to the modulus of elasticity or a suitable stiffener has to be used.

The adhesive 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 may be substituted for the block of adhesive.

It is not suitable for film adhesives.

2 Normative references

This European Prestandard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed here after. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Prestandard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

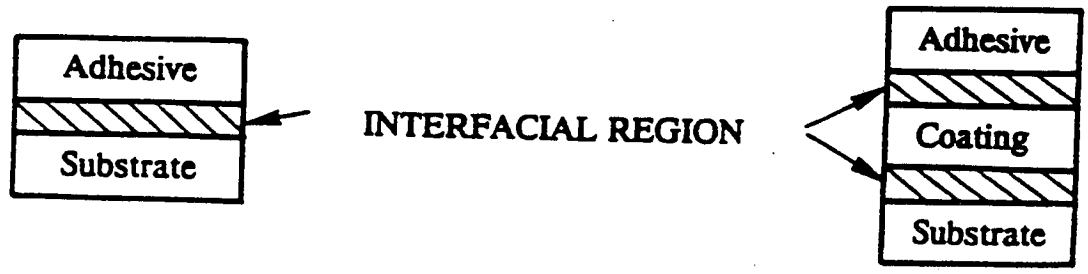
EN 10025	Hot - Rolled products in non-alloy structural steels - Technical delivery conditions.
EN 29142	Adhesives - Guide to the selection of standard laboratory ageing conditions for testing bonded joints.
ISO 286-1	ISO system of limits and fits - Pat 1 : Bases of tolerances, deviations and fits
ISO 291	Plastics - Standard atmospheres for conditioning and testing
ISO 4588	Adhesives - Preparation of metal surfaces for adhesive bonding
ISO 10365	Adhesives - Designation of the main failure patterns

3 Definition

For the purpose of this prestandard, the following definition applies :

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.



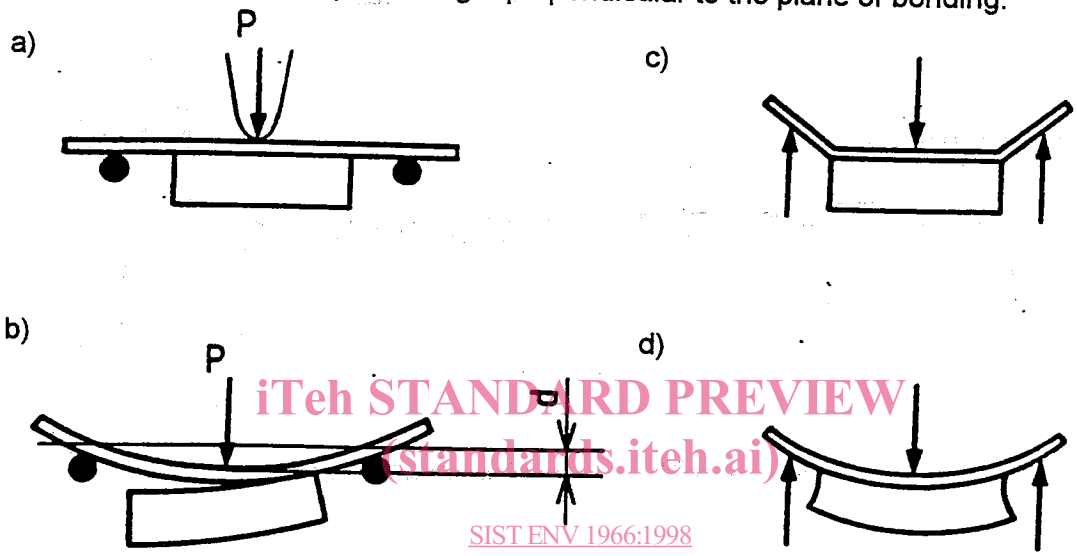
Schematic diagram of interfacial region

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 from of a parallelepiped block which, when subjected to bending, generates a discontinuity in rigidity (see Figure 1). 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.



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 1 : Principle of the test

The values for maximum force and displacement or for the clear space 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 2) which substrate seatings positioned at regular intervals.

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

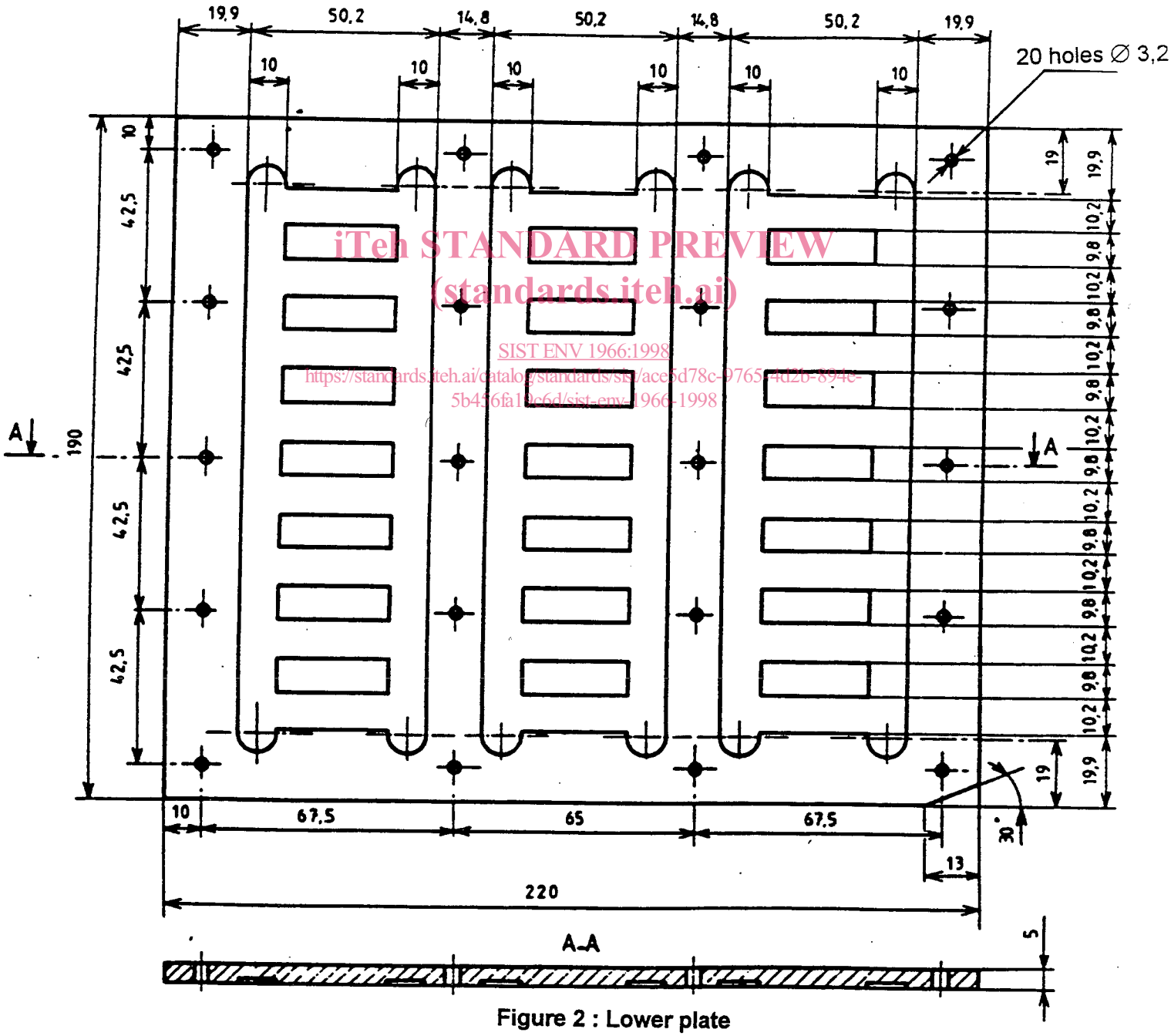


Figure 2 : Lower plate