



**SLOVENSKI STANDARD**  
**SIST EN 12960:2002**

**01-februar-2002**

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Adhesives for paper and board, packaging and disposable sanitary products -  
Determination of shear resistance

Klebstoffe für Papier, Verpackung und Hygieneprodukte - Bestimmung des  
Schерwiderstandes

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Adhésifs pour papier et carton, emballage et produits sanitaires a jeter - Détermination  
de la résistance au cisaillement

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**Ta slovenski standard je istoveten z: EN 12960:2001**

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**ICS:**

83.180

Lepila

Adhesives

**SIST EN 12960:2002**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 12960**

March 2001

ICS 83.180

English version

## Adhesives for paper and board, packaging and disposable sanitary products - Determination of shear resistance

Adhésifs pour papier et carton, emballage et produits  
sanitaires à jeter - Détermination de la résistance au  
cisaillement

Klebstoffe für Papier, Verpackung und Hygieneprodukte -  
Bestimmung des Scherwiderstandes

This European Standard was approved by CEN on 4 February 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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## Foreword

This European Standard 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 September 2001, and conflicting national standards shall be withdrawn at the latest by September 2001.

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

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## 1 Scope

This European Standard specifies a test method for the determination of the shear resistance of an adhesive bond at constant static load and constant or increasing temperature.

The test method is intended for ranking and quality control of adhesives and not for obtaining data for design purposes.

## 2 Normative references

This European Standard 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 hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 923	Adhesives — Terms and definitions
EN 1066	Adhesives — Sampling
EN 1067	Adhesives — Examination and preparation of samples for testing
ISO 291	Plastics — Standard atmospheres for conditioning and testing.

## 3 Terms and definitions

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For the purpose of this European Standard, the terms and definitions given in EN 923 apply.

## 4 Principle

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A constant shear force is applied to an adhesive bond. The time for bond failure to occur at constant temperature is recorded or alternatively, with increasing temperature, the temperature at which failure occurs.

## 5 Safety

Persons using this standard shall be familiar with normal laboratory practice.

This standard does not purport to address all the safety problems, if any, associated with its use.

It is the responsibility of the user to establish safety and health practices and to ensure compliance with any European or national regulatory conditions.

## 6 Preparation of test specimens

Test specimens shall be single overlapped joints using adherends capable of withstanding the expected shear force.

The adherends shall be identical unless the test is carried out to verify compliance with a specification which requires adherends of different materials. The adherends shall be fully described in the test report.

A significant sample of the adhesive shall be taken in accordance with EN 1066 and prepared for testing in accordance with EN 1067.

The adhesive shall be applied to one or both of the adherends by the method recommended by the adhesive manufacturer. The application temperature shall be specified.

The coating conditions, coating weight and bonding conditions shall comply with commercial practice and shall be reported.

Test specimens of width  $(25 \pm 1)$  mm shall be cut from the bonded adherends unless otherwise specified. These bonded adherends shall overlap at least  $(10 \pm 1)$  mm and be of sufficient width to cut a minimum of three test specimens each 25 mm wide at right angles to the overlap without using the edge areas. It is advisable to prepare more than three test specimens.

Different adhesive types e.g. hot melt adhesives will require different methods of preparing the test specimens but the bonded area shall still be  $(25 \pm 1)$  mm x  $(10 \pm 1)$  mm.

If a press is used to make the test specimens, it shall be capable of applying an even pressure over the entire bonded area and should preferably be fitted with a time release mechanism.

In order to give an uniform distribution of pressure over the bonded area the platens of the press shall be parallel but where this is impracticable, one platen can be covered with a resilient pad.

At least three test specimens shall be tested, unless a different number is specified.

## 7 Conditioning

The adherends shall be stored under standard conditions of temperature and humidity for at least 24 h.

The test specimens shall be stored under the same conditions for at least 24 h before being tested.

Unless otherwise specified the recommended conditions are a temperature of  $(23 \pm 2)$  °C and  $(50 \pm 5)\%$  relative humidity according to ISO 291.

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## 8 Procedure

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### 8.1 Constant temperature

Choose the test conditions (temperature and relative humidity).

Hang the test specimen from one end in a vertical plane and a load of 1 g attached to the lower end of the test specimen in such a way as to avoid distortion of the test specimen and to allow an even distribution of the load over the entire bonded area. Record the time after which the bond is broken. If no bond failure occurs within five days, the test shall be repeated using an increased load, for example, 1,5 g.

If the adherend fails under the applied load, the test shall be repeated using a lower load.

### 8.2 Increasing temperature

If the temperature at which failure occurs is to be determined, place the test specimens in an oven programmed to raise the temperature evenly by 5 °C/h.

Record the temperature when failure occurs.

## 9 Expression of results

### 9.1 Constant temperature

The result is the mean of the values obtained expressed in minutes for the applied load in kilograms.

### 9.2 Increasing temperature

The result is the mean value obtained expressed in °C for the applied load in kilograms.

## 10 Test report

The report shall state :

- a) reference to this standard and the date of testing ;
- b) a designation of the adhesive, giving all information required for complete identification of the sample ;
- c) a description of the adherends including material thickness, surface preparation and the number of test specimens used ;
- d) overlapped area of the bond ;
- e) the method of bonding, the coating weight, coating conditions, bonding conditions including pressure and the adhesive temperature ;
- f) the force applied to the bond and the storage and testing conditions ;
- g) in the case of testing at elevated temperature, the rate of increase of the temperature, the number of test specimens used ;
- h) the result of the test ;
- i) any other factors which can have affected the result of the test.

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