



**SLOVENSKI STANDARD**  
**SIST ENV 12282:1997**  
**01-september-1997**

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**Papir - Tiskovni papir in papirji za poslovne namene - Določanje robne prašnosti**

Paper - Printing and business paper - Determination of edge dust

Papier - Druck- und Büropapiere - Bestimmung des Schnittkantenstaubes

Papier - Papier d'impression et de bureau - Détermination de la poussière des bords

**Ta slovenski standard je istoveten z: ENV 12282:1996**

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**ICS:**

85.080.10      Pisarniški papir      Office paper

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EUROPEAN PRESTANDARD

ENV 12282

PRÉNORME EUROPÉENNE

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Descriptors: paper, printing paper, photocopying, tests, measurements, dust

English version

**Paper - Printing and business paper -  
Determination of edge dust**

Papier - Papier d'impression et de bureau - Papier - Druck- und Büropapiere - Bestimmung  
Détermination de la poussière des bords des Schnittkantenstaubes

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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 Technical Committee CEN/TC 172 "Pulp, paper and board", the secretariat of which is held by DIN.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of 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.

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## Introduction

This European Prestandard is part of a series of standards prepared by CEN/TC 172. When establishing the requirements for copy-paper, it was felt that the key-factor was the satisfaction of the consumer. The conclusion made was to put aside the various characteristics of the paper and to concentrate on the final result. In other words, the task of the responsible Working Group was ideally to define the equivalent of "printability" and its metrics. Since a standard copier does not exist, various essential measurable properties have been used which, when taken together, provide a definition of the characteristics necessary for a good performance.

Edge dust is one of these. It has been confirmed by copier manufacturers as the major source of break-downs and complaints: a test method was therefore indispensable.

This test method is new. Only a limited number of devices are available in Europe, and are not yet suitable for short-edge measurement.

The responsible Working Group felt that because it is an essential criteria for runnability, edge dust had to have a test method. It was acknowledged that the test method developed in Germany was basically good. However, because the test method still requires improvement and experience, the European Standard is published as European Prestandard (ENV). It is hoped that a comprehensive European Standard will come and replace it in the near future.

## 1 Scope

This European Prestandard specifies the test method for measuring dust release from the edges of cut size papers.

## 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 hereafter. 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 dated references the latest edition of the publication referred to applies.

EN ISO 186

Paper and board – Sampling to determine average quality (ISO 186 : 1994)

EN 20187

Paper, board and pulps – Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples (ISO 187 : 1990)

EN 20216

Writingpaper and certain classes of printed matter – Trimmed sizes – A and B series (ISO 216 : 1975)

EN 20534

Paper and board – Determination of thickness and apparent bulk density or apparent sheet density (ISO 534 : 1988)

CIE Publication 17.4

International Lighting vocabulary, 4th edition

## 3 Definitions

For the purposes of this Prestandard the following definition applies:

**dust at the cut edge:** Loose fibrous and non-fibrous particles, located along the edges of a paper sheet.

## 4 Principle

A transparent adhesive tape is applied to the edge of a clamped ream of paper. The clear adhesive tape with the clinging dust is removed and applied to a black adhesive tape.

The luminous reflectance factor of the black adhesive tape laminated to the clear adhesive is measured. The black adhesive tape with an applied clear adhesive tape which has not been applied to a ream of paper serves as the reference value. Deviation of relative luminous reflectance factor of the sample from the reference value constitutes a measured value of dust accumulation.

NOTE: Edge dust is dimensionless.

## 5 Apparatus

### 5.1 Clamping device

The clamping device shall consist of two parallel clamping plates one fixed (3) the other movable (4). The clamping device should allow for the paper under test to be above the level of the plates (see figure 1).

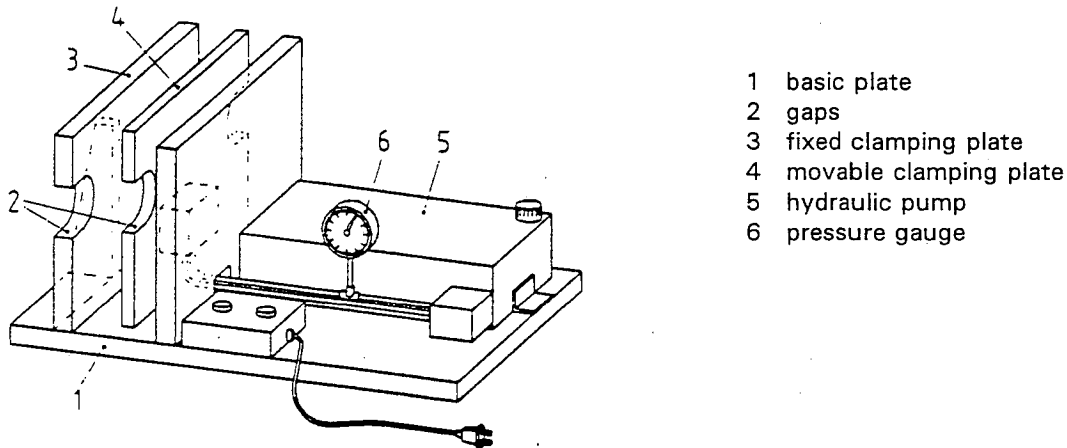


Figure 1: Clamping device for determining edge dust

An hydraulic pump (5) is mounted on the base of the movable (mobile) clamping plate (4) which is used to close the test pieces against the fixed clamping (3) plate. A gauge (6) reads the pressure which is exerted upon the test pieces.

In front of the two clamping plates there are gaps (2) which facilitate the manual handling of the test piece without touching the edges.

### 5.2 Pressure roller

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5.2.1 The pressure roller (see figure 2) is specified as follows:

- mass 6 kg;
- width 40 mm;
- diameter 170 mm.

5.2.2 The support of the pressure roller (2) should be designed in such a way that only the mass of the pressure roller acts on the test piece.

5.2.3 The hardness of the rubber liner of the pressure roller (1) should be 40 IRHD (International Rubber Hardness Degrees).

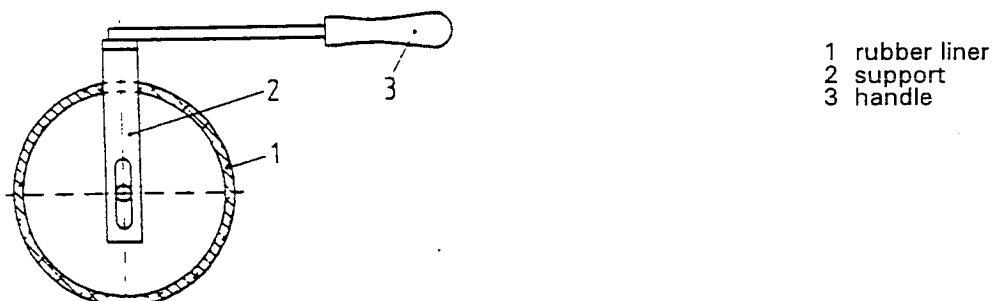


Figure 2: Pressure roller used to determine edge dust

### 5.3 Colour difference gauge

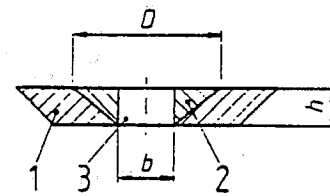
Figure 3 shows, in section and in plan view, a shield for dust measurement by means of the optical device. This shield consists of a frame (1) of height  $h$ .

The frame tapers so that in the interior of the frame there is a large upper frame opening (2) and a smaller lower frame opening (3).

This smaller frame opening (3) has a rectangular shape (4) of width  $b$  and length  $l$  which is greater than the diameter  $D$  of the upper frame opening (2). Thus the actual shield opening is formed by the lower frame opening.

- size of measuring opening: 15 mm x 49 mm;
- measuring geometry: 45° illumination;  
0° vision;
- light source C in accordance with CIE 17.4;
- 2° standard observer;
- optical device, e.g. Hunterlab D 25 D 2 M/L<sup>1)</sup>

- 1 frame
- 2 large upper frame opening
- 3 smaller lower frame opening
- 4 rectangular shape



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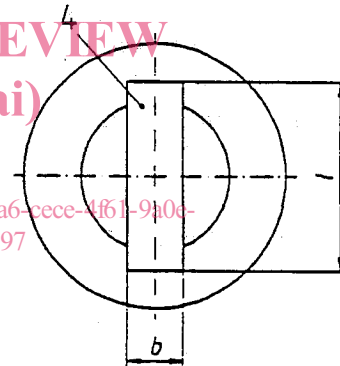


Figure 3: Reduced measuring opening of the optical device (see footnote <sup>1)</sup>)

### 5.4 Transparent adhesive tape

The transparent adhesive tape should include the following specifications:

- width 7 mm to 35 mm;
- adhesive strength  $(7 \pm 1)$  N/25 mm;
- e.g. Tesa<sup>®</sup> Film clear, N° 4206<sup>2)</sup>.

<sup>1)</sup> Hunterlab D 25 D 2 M/L is an example of a suitable apparatus available commercially. This information is given for the convenience of users of this Prestandard and does not constitute an endorsement by CEN of this apparatus.

<sup>2)</sup> Tesa Film is the trade name of a product supplied by Beiersdorf Hamburg. This information is given for the convenience of users of this Prestandard and does not constitute an endorsement by CEN of this apparatus. Equivalent apparatus may be used if they can be shown to lead to the same results.



### 5.5 Black adhesive tape

The black adhesive tape shall include the following specifications:

- width, at least the width of the transparent tape;
- e.g. Tesa<sup>®</sup> Film black, N 104<sup>2)</sup>.

### 5.6 Base

A base can be formed by using cardboard with dimensions of 500 mm in length and 350 mm in width.

## 6 Sampling

Samples shall be taken in accordance with EN ISO 186.

NOTE: If the tests are being made on another type of sample, make sure that the test pieces taken are representative of the sample received.

## 7 Conditioning

Use only undamaged reams or sheets. No special conditioning of the samples is required. The test shall be performed under the standard climatic conditions 23/50 in accordance with EN 20187.

## 8 Procedure

The procedure in detail is as follows:

The black adhesive tape is applied parallel to the long edge of the plane at a distance of about 20 mm.

Knock up a ream to obtain a levelled bottom edge and clamp it in the clamping device the knocked edge facing down (see figure 4).

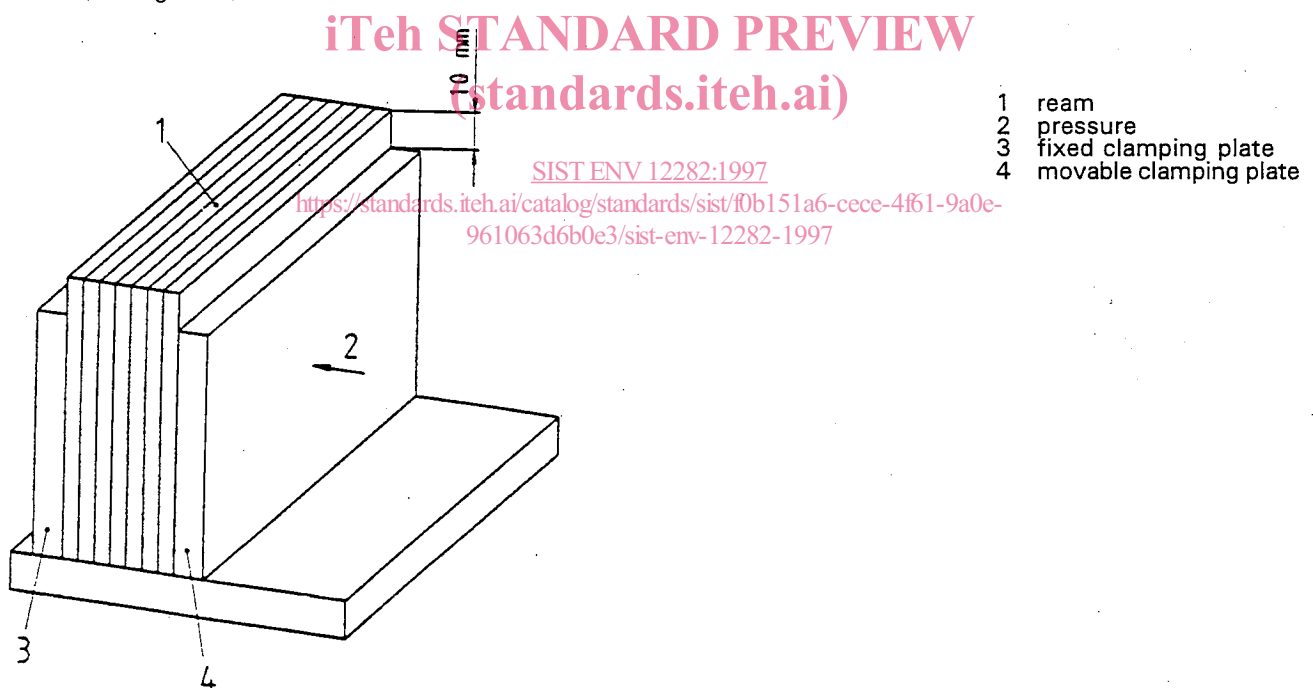


Figure 4: Ream of paper in the clamping device

<sup>2)</sup> see page 6