



SLOVENSKI STANDARD
SIST EN 12127:1999

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Tekstilije - Ploskovne tekstilije - Ugotavljanje ploščinske mase majhnih preskušancev

Textiles - Fabrics - Determination of mass per unit area using small samples

Textilien - Textile Flächengebilde - Bestimmung der flächenbezogenen Masse unter Verwendung kleiner Proben

Textiles - Etoffes - Détermination de la masse surfacique sur de petits échantillons

Ta slovenski standard je istoveten z: EN 12127:1997

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ICS:

59.080.30 Tkanine Textile fabrics

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EUROPEAN STANDARD

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English version

Textiles - Fabrics - Determination of mass per unit area using small samples

Textiles - Etoffes - Détermination de la masse surfacique sur de petits échantillons

Textilien - Textile Flächengebilde - Bestimmung der flächenbezogenen Masse unter Verwendung kleiner Proben

This European Standard was approved by CEN on 19 July 1997.

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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 Central Secretariat has the same status as the official versions.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 248 "Textiles and textile products", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by April 1998, and conflicting national standards shall be withdrawn at the latest by April 1998.

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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Introduction

This method for the determination of mass per unit area is based on the measurement of small samples of fabrics in the conditioned and/or oven-dry state. Other possible methods are described in ISO 3801 'Textiles - Woven Fabrics - Determination of mass per unit length and mass per unit area'.

1 Scope

This standard describes methods for the determination of the mass per unit area using small samples in the standard atmosphere for testing and/or oven-dry. It is applicable to woven and knitted fabrics. It may also be applicable to fabrics produced by other techniques.

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.

EN 20139:1993

Textiles - Standard atmospheres for conditioning and testing. (ISO 139:1979)

EN 30012-1:1993

Quality assurance requirements for measuring equipment - Part 1: Metrological confirmation system for measuring equipment. (ISO 10012-1:1992)

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3 Definition

For the purposes of this Standard the following definitions apply:

3.1 mass per unit area: Mass of a known area of fabric divided by that area, expressed in grams per square metre.

4 Principle

The sample of fabric is conditioned in the relaxed state, specimens are cut, and weighed in the conditioned and/or oven-dry state, and the mass per unit area is calculated.

5 Sampling

5.1 Sampling from fabrics

Select specimens either in accordance with the procedure laid down in the material specification for the fabric, or as agreed between the interested parties.

In the absence of an appropriate material specification an example of a suitable sampling procedure is given in Annex A.

An example for selecting test specimens from a laboratory sample is given in Annex B. Avoid test specimens with folded or creased areas, selvages and areas not representative of the fabric. For non-homogeneous fabrics select specimens representative of the various areas which shall be defined as agreed between the interested parties.

5.2 Sampling from garments

When possible take a specimen from each of the different parts or elements of the garment.

Example: For long leg underwear take two specimens from each leg and one from the top section.

6 Apparatus

Testing equipment used shall conform to EN 30012-1:1993

6.1 Cutting devices

6.1.1 Cutting device with an area of cut of minimum 100 cm² capable of cutting to an accuracy of $\pm 1\%$.

6.1.2 Scissors, if no cutting device is to be used.

6.2 Rule graduated in 0,5 mm.

6.3 Balance accurate to ± 1 mg.

6.5 Weighing bottles of suitable dimensions for the test specimens.

6.6 Drying oven capable of maintaining (105 ± 3) °C and equipped with air circulation.

6.7 Desiccator.

7 Atmosphere for conditioning and testing

The atmosphere for preconditioning, conditioning and testing shall be as specified in EN 20139:1993

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8 Procedure

8.1 Relaxation of fabrics

It is important to assure that the fabrics are in the relaxed state prior to testing. The fabrics shall be kept in a flat tension-free state for at least 24 h, during conditioning as specified in clause 7. Knitted fabrics may require a prior relaxation treatment in addition, as agreed between the parties. This shall be stated in the test report.

8.2 Determination of area

Cut out at least five test specimens of minimum 100 cm² using the cutting device (6.1.1) or scissors (6.1.2), avoiding distortion of the fabric.

When using the cutting device use the area of the cutting device for the calculation (see clause 9).

When using scissors take three measurements of the length and three of the width of each test specimen, to the nearest 1 mm. From the mean values of length and width calculate the cut area of each test specimen, rounding the result to three significant figures. Use this measured area for the calculation (see clause 9).

8.3 Determination of mass in the standard atmosphere for testing.

Weigh the individual test specimens and record each value, to the nearest 1 mg.

8.4 Determination of oven-dry mass.

Preheat the oven to (105 ± 3) °C. Place the test specimens individually in weighing bottles and place the bottles with the lid adjacent to them in the oven and dry to constant mass, which shall be considered as attained when no progressive change in mass greater than 0,1 % occurs in successive weighings separated by a drying period of at least 40 min.

NOTE: Experience has shown that a four hour drying period is sufficient for most textile fabrics.

After drying place the lids on the weighing bottles and cool the bottles in a desiccator.

Weigh the specimen in the bottle, and the bottle alone, and record each value.

Calculate the individual oven-dry mass of each test specimen.

9 Expression of results

For each test specimen, calculate the mass per unit area, M , in grams per square meter using the following formula:

$$M = \frac{m \times 10000}{A}$$

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where:

m is the mass of a test specimen conditioned or oven-dry, in grams;

A is the area of the same test specimen, in square centimetres.

Calculate the mean mass per unit area in grams per square metre and round the result to three significant figures.

If required, calculate the coefficient of variation to the nearest 0,1 %, the 95 % confidence limits and/or minimum and maximum values, rounded to three significant figures.

10 Test report

The report shall include the following information.

- a) The reference to this standard and the date of test;
- b) identification of the test sample and if required, the sampling procedure;
- c) any treatment applied to the material before the test, and especially for knitted fabrics if any specific relaxation procedure has been carried out;
- d) the conditions of testing, in the standard atmosphere and/or oven-dry;
- e) any deviation from the given procedure;
- f) mean mass per unit area, in grams per square metre;
- g) if required, the coefficient of variation, in percent;
- h) if required, the 95 percent confidence limits, in grams per square metre;
- i) if required, minimum and maximum values for test specimens, in grams per square metre.

ANNEX A (informative)**Suggested procedure for sampling****A.1 Bulk Sample** (number of pieces from a shipment or lot)

Take at random from the shipment or lot the appropriate number of pieces as given in table 2. Ensure that no piece that shows signs of damage or dampness incurred during transit is included in the sample.

Table A.1 - Bulk sample

Number of pieces in shipment or lot	Number of pieces in bulk sample, minimum
3 or less	1
4 to 10	2
11 to 30	3
31 to 75	4
76 or more	5

A.2 Laboratory samples

From each piece in the bulk sample, cut (from a position taken at random but at least 3 m from an end of the piece) a laboratory sample of length at least 1 m and of full width. Ensure that areas that are creased or that have a visible fault are not included in the sample.