

Matting of insulating material for electrical purposes

ICS 13.260

National foreword

This Draft for Development is the official English language version of ENV 61111:2001.

This publication is not to be regarded as a British Standard.

It is being issued in the Draft for Development series of publications and is of a provisional nature. It was developed by CENELEC as a potential full standard but was never completed. The work has now been transferred to IEC (International Electrotechnical Commission). The CENELEC committee decided it should be published on a provisional basis, so that information and experience of its practical application may be obtained. Users are still encouraged to use BS IEC 61111:1992, *Matting of insulating material for electrical purposes*.

Comments arising from the use of this Draft for Development are requested so that UK experience can be reported to the European organization responsible for its conversion onto a European Standard. A review of this publication will be initiated 2 years after its publication by the European organization so that a decision can be taken on its status at the end of its three-year life. The commencement of the review period will be notified by an announcement in *Update Standards*.

According to the replies received by the end of the review period, the responsible BSI Committee will decide whether to support the conversion into a European Standard, to extend the life of the prestandard or to withdraw it. Comments should be sent in writing to the Secretary of BSI Technical Committee PEL/78, Tools for live working, at 389 Chiswick High Road, London W4 4AL, giving the document reference and clause number and proposing, where possible, an appropriate revision of the text.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

Summary of pages

This document comprises a front cover, an inside front cover, the ENV title page, pages 2 to 22, an inside back cover and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

This Draft for Development, having been prepared under the direction of the Electrotechnical Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 22 February 2002

Amendments issued since publication

Amd. No.	Date	Comments

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Matting of insulating material for electrical purposes
(IEC 61111:1992 + corrigendum 2000, modified)

Tapis en matériau pour travaux
électriques
(CEI 61111:1992 + corrigendum 2000,
modifiée)

Matten aus Isolierendem Material für
elektrische Anwendungen
(IEC 61111:1992 + Corrigendum 2000,
modifiziert)

This European prestandard was approved by CENELEC on 2001-03-24 as a prospective standard for provisional application. The period of validity of this ENV is limited initially to three years. After two years the members of CENELEC will be requested to submit their comments, particularly on the question whether the ENV can be converted into a European Standard (EN).

CENELEC members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

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

CENELEC

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

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Foreword

The text of the International Standard IEC 61111:1992 + corrigendum May 2000, prepared by IEC TC 78, Tools for live working, together with the common modifications prepared by the Technical Committee CENELEC TC 78, Equipment and tools for live working, was submitted to the CENELEC questionnaire and vote procedure and was approved by CENELEC as ENV 61111 on 2001-03-24.

The following date was fixed:

- latest date by which the existence of the ENV
has to be announced at national level (doa) 2001-07-01

Annexes designated "normative" are part of the body of the prestandard.

Annexes designated "informative" are given only for information.

In this prestandard, annexes A, B, C, D and ZA are normative and annexes E, F, and G are informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61111:1992 + corrigendum May 2000 was approved by CENELEC as a European Prestandard with agreed common modifications as given below.

COMMON MODIFICATIONS

Contents

Add "and tolerances" to the title of 6.2.

Add "(normative)" after annex A, annex B, annex C and annex D.

Add "(informative)" after annex E, annex F and annex G.

Add a new annex ZA

Annex ZA (normative) - Normative references to international publications with their corresponding European publications

1 Scope

Add a second paragraph:

Insulating mattings have increased mechanical characteristics with respect to insulating blankets covered by IEC 61112. In particular, the puncture resistance of mattings is equal to that of category M blankets.

2 Normative references

Replace by:

NOTE Normative references to International publications are listed in annex ZA (normative)

3 Definitions

3.6 Replace by:

3.6

proof test

a test during which a specified voltage is applied to a device for the time defined under specified conditions to assure that the electrical strength of the insulation is above the specified value

3.7 Replace by:

3.7

withstand test

a test during which the device must withstand without flashover, disruptive discharge, puncture or other electric failure a voltage applied under specified conditions

- 3.11** Replace "*nominal voltage*" by "*nominal voltage of a system*" and replace "to identify" by "to designate or identify".

Add:

3.12

usable area

the matting area that protects the worker against electric shock and that is verified by the proof test

5 Classification

Replace the second paragraph by:

Guidance for the selection of class is given in annex E.

6 Physical requirements

Replace 6.2, 6.3, including Table 2, and 6.4 by:

6.2 Dimensions and tolerances

Recommended dimensions for matting are indicated in Table 1.

Table 1 - Recommended dimensions for matting

Specific shape		Rolls of sheets
length mm	Width mm	Width mm
1 000	600	610
1 000	1 000	760
1 000	2 000	915
		1 220

Permissible variations in width shall be ± 15 mm for 600 mm, 610 mm and 760 mm widths and ± 25 mm for 915 mm, 1 000 mm, 1 220 mm and 2 000 mm widths.

For matting with dimensions different from those recommended in Table 1, tolerances of ± 2 % are required.

6.3 Thickness

6.3.1 The maximum thickness of matting shall be limited in order to obtain appropriate flexibility and in order to pass the test defined in 7.6.2 (low temperature test).

6.3.2 The minimum thickness shall be determined only by the ability to pass the tests defined in clauses 7 and 8.

6.4 Workmanship and finish

Matting shall be free on both surfaces from harmful physical irregularities that can be detected by the tests carried out according to this Prestandard. Harmful and non-harmful physical irregularities are described in annex G (In-service recommendations).

6.5 Replace 6.5.1 by:

6.5.1 Each matting which is claimed to comply with the requirements of this Prestandard shall be marked at least on one surface with the following:

- a) symbol (double triangle) (see annex A);
- b) name, trademark, or identification of the manufacturer;
- c) category, if applicable;
- d) size (length and width);
- e) class designation;
- f) month and year of manufacture;
- g) usable area (see Figure 1), except for class 0. (On rolls the usable area shall be marked along the two sides only).

In addition each matting shall have a group of rectangles or other suitable means to identify when the matting was put into service and the dates of periodic inspection and testing.

The usable area shall be visibly and permanently identified, for example by a line around the usable area which has a minimum thickness of 3 mm.

In the case of rolls, they shall bear on one border at least every metre all the above markings, except d).

6.5.2 Delete the second paragraph.**6.5.4 Add "and of the limit of usable area" after "(double triangle)".****6.6 Add after the first paragraph:**

Instructions for use shall be included in the package.

7 Tests on matting**7.1 Replace the third paragraph by:**

In order to carry out the type tests, it is necessary to have 13 mats. For mattings in rolls, the unit is a square of dimensions equal to the width.

Replace from the fifth paragraph to the end of the subclause by:

The test location conditions shall be in accordance with IEC 60160, clause 4 (temperature from 15 °C to 35 °C and relative humidity from 45 % to 75 %).

Unless otherwise specified, matting shall be conditioned for a period of 2 h $\pm$ 0,5 h at a temperature of 23 °C $\pm$ 2 °C and relative humidity of 50 % $\pm$ 5 % (see IEC 60212, standard atmosphere B).

Conditioning shall be performed on complete mattings or on test pieces.

Unless otherwise specified, the tolerances for any measured value shall be $\pm$ 5 %.

Samples, units and test pieces submitted to non destructive tests can be re-used for other tests. Samples, units and test pieces submitted to destructive tests shall be scrapped.

7.2.3 Replace by "Void".

7.2.5 Replace the text by:

Type test and routine test (see 6.5)

The marking shall be verified by visual inspection and durability test for type test (« visual inspection » means by a person with normal or corrected vision and without additional magnification). No durability test is required for routine test.

The durability of the marking is checked by rubbing the marking for 15 s with a piece of lint-free cloth soaked in soapy water and then rubbing it for further a 15 s with a piece of lint-free cloth soaked in ethyl alcohol. At the end of the test, the marking must remain legible.

7.3.1 Add after the first paragraph:

The test pieces shall be cut from samples in two perpendicular directions.

7.3.2 Add in the second paragraph "(max. 25 mm)" after "6 mm".

Replace "Figure 1" by "Figure 2" (two times).

7.3.3 Replace "Figure 2" by "Figure 3" (two times).

Add a note at the end of the subclause:

NOTE This test procedure is given for information only, waiting for the results from the CEN/TC 134 ad hoc Group Slip.

7.4.1 Replace the text by:

Dielectric testing shall be carried out either at a.c. or d.c. voltage. The choice of a.c. or d.c. shall be made between manufacturer and customer.

NOTE The equivalence of d.c. tests and a.c. tests is under consideration. The values of d.c. test voltages are under consideration.

For type tests three mats are used. For routine tests one mat is sufficient. For sampling tests the number is given in annex D (sample size).

The peak (crest) or r.m.s. value of the a.c. voltage shall be measured with an error of not more than 3 % (see IEC 60060-3).

For type and sampling tests the mats shall be conditioned for moisture absorption by total immersion in a bath of tap water at room temperature, as specified in 7.1, for a period of 16 h $\pm$ 0,5 h. Insulating compounds used in the finishing process (e.g. paraffin and talcum powder), should be removed before the test is commenced with suitable solvents. After the conditioning the matting shall be wiped and immediately submitted to the dielectric test.

For routine tests such conditioning is not required.