



SLOVENSKI STANDARD
SIST-TS CLC/TS 61111:2007
01-marec-2007

Podloge iz izolacijskega materiala za uporabo v elektrotehniko (IEC 61111:1992 + A1:2002 + popravek maj 2000 + A1:2002)

Matting of insulating material for electrical purposes

Matten aus isolierendem Material für elektrische Anwendungen

Tapis en matériau isolant pour travaux électriques

STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: CLC/TS 61111:2006

<https://standards.iteh.ai/catalog/standards/sist/a6e18b9c-e43f-46c2-a6b7-0257d4bd063a/sist-ts-clc-ts-61111-2007>

ICS:

13.260 Xæ•ç[Á!^âÁ|\ dã } ä Protection against electric
 ~ áæ[{ ÉÖ^|[Á[áÁ æ^q •ç shock. Live working

SIST-TS CLC/TS 61111:2007 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CLC/TS 61111:2007](https://standards.iteh.ai/catalog/standards/sist/a6e18b9c-e43f-46c2-a6b7-0257d4bd063a/sist-ts-clc-ts-61111-2007)

<https://standards.iteh.ai/catalog/standards/sist/a6e18b9c-e43f-46c2-a6b7-0257d4bd063a/sist-ts-clc-ts-61111-2007>

TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
TECHNISCHE SPEZIFIKATION

CLC/TS 61111

December 2006

ICS 13.260; 29.260.99

English version

Matting of insulating material for electrical purposes (IEC 61111:1992 + corrigendum May 2000 + A1:2002)

Tapis en matériau isolant
pour travaux électriques
(CEI 61111:1992
+ corrigendum mai 2000 + A1:2002)

Matten aus isolierendem Material
für elektrische Anwendungen
(IEC 61111:1992
+ Corrigendum Mai 2000 + A1:2002)

This Technical Specification was approved by CENELEC on 2006-09-02.

CENELEC members are required to announce the existence of this TS in the same way as for an EN and to make the TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force.

[SIST-TS CLC/TS 61111:2007](https://standards.iteh.ai/standards/itstdoc/61111-2007)

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of the International Standard IEC 61111:1992 + corrigendum May 2000 + A1:2002, prepared by IEC TC 78, Live working, was submitted to the formal vote and was approved by CENELEC as CLC/TS 61111 on 2006-09-02.

The following date was fixed:

- latest date by which the existence of the CLC/TS
has to be announced at national level (doa) 2007-03-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61111:1992 + corrigendum May 2000 + A1:2002 was approved by CENELEC as a Technical Specification without any modification.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CLC/TS 61111:2007](https://standards.iteh.ai/catalog/standards/sist/a6e18b9c-e43f-46c2-a6b7-0257d4bd063a/sist-ts-clc-ts-61111-2007)

<https://standards.iteh.ai/catalog/standards/sist/a6e18b9c-e43f-46c2-a6b7-0257d4bd063a/sist-ts-clc-ts-61111-2007>

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-121	1978	International Electrotechnical vocabulary (IEV) Chapter 121: Electromagnetism	-	-
IEC 60050-151	1978	International Electrotechnical Vocabulary (IEV) Part 151: Electrical and magnetic devices	-	-
IEC 60050-601	1985	International Electrotechnical Vocabulary (IEV) Chapter 601: Generation, transmission and distribution of electricity - General	-	-
IEC 60060-1 + corr. March	1989 1990	High-voltage test techniques Part 1: General definitions and test requirements	HD 588.1 S1	1991
IEC 60060-3	1976	High-voltage test techniques Part 3: Measuring devices	-	-
IEC 60160	1963	Standard atmospheric conditions for test purposes	-	-
IEC 60212	1971	Standard conditions for use prior to and during the testing of solid electrical insulating materials	HD 437 S1	1984
IEC 60417	Data base	Graphical symbols for use on equipment	-	-
IEC 61318	1994	Live working - Guidelines for quality assurance plans	-	-
ISO 683-13	1986	Heat-treatable steels, alloy steels and free-cutting steels Part 13: Wrought stainless steels	-	-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 1302 ¹⁾	1978	Technical drawings - Method of indicating surface texture on drawings	-	-
ISO 1817 ²⁾	1985	Rubber, vulcanized - Determination of the effect of liquids	-	-
ISO 2592	1973	Petroleum products - Determination of flash and fire points - Cleveland open cup method	EN 22592 ³⁾	1993
ISO 2859-1	1999	Sampling procedures for inspection by attributes Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection	-	-
ISO 2977 ⁴⁾	1989	Petroleum products and hydrocarbon solvents - Determination of aniline point and mixed aniline point	-	-
ISO 3104 ⁵⁾	1976	Petroleum Products - Transparent and opaque liquids - Determination of kinematic viscosity and calculation of dynamic viscosity	-	-
ISO/IEC 9000	1987	Quality management and quality assurance standards - Guidelines for selection and use	EN 29000 ⁶⁾	1987
ISO/IEC 9001	1987	Quality systems - Model for quality assurance in design/development, production, installation and servicing	EN 29001 ⁷⁾	1987
ISO/IEC 9002	1987	Quality systems - Model for quality assurance in production and installation	EN 29002 ⁸⁾	1987
ISO/IEC 9003	1987	Quality systems - Model for quality assurance in final inspection and test	EN 29003 ⁹⁾	1987

¹⁾ ISO 1302 is superseded by ISO 1302:2002, which is harmonized as EN ISO 1302:2002.

²⁾ ISO 1817 is superseded by ISO 1817:2005.

³⁾ EN 22592 is superseded by EN ISO 2592:2001, which is based on ISO 2592:2000.

⁴⁾ ISO 2977 is superseded by ISO 2977:1997.

⁵⁾ ISO 3104 is superseded by ISO 3104:1994, which is harmonized as EN ISO 3104:1996.

⁶⁾ EN 29000 is superseded by EN ISO 9000:2005, which is based on ISO 9000:2005.

⁷⁾ EN 29001 is superseded by EN ISO 9001:2000, which is based on ISO 2001:2000.

⁸⁾ EN 29002 is superseded by EN ISO 9002:1994, which is based on ISO 9002:1994.

⁹⁾ EN 29003 is superseded by EN ISO 9003:1994, which is based on ISO 9003:1994.

**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

61111

Edition 1.1

2002-06

Edition 1:1992 consolidée par l'amendement 1:2002
Edition 1:1992 consolidated with amendment 1:2002

**Tapis en matériau isolant
pour travaux électriques**

**Matting of insulating material
for electrical purposes
(standards.iteh.ai)**

[SIST-TS CLC/TS 61111:2007](https://standards.iteh.ai/catalog/standards/sist/a6e18b9c-e43f-46c2-a6b7-0257d4bd063a/sist-ts-clc-ts-61111-2007)

<https://standards.iteh.ai/catalog/standards/sist/a6e18b9c-e43f-46c2-a6b7-0257d4bd063a/sist-ts-clc-ts-61111-2007>

© IEC 2002 Droits de reproduction réservés — Copyright - all rights reserved

Aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'éditeur.

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Electrotechnical Commission
Telefax: +41 22 919 0300

3, rue de Varembeé Geneva, Switzerland
e-mail: inmail@iec.ch IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

CF

*Pour prix, voir catalogue en vigueur
For price, see current catalogue*

CONTENTS

FOREWORD.....	7
1 Scope	9
1.1 Classes	9
1.2 Categories.....	9
2 Normative references.....	9
3 Definitions.....	11
4 Composition.....	13
5 Classification	13
6 Physical requirements.....	15
6.1 Shape	15
6.2 Dimensions	15
6.3 Thickness.....	15
6.4 Workmanship and finish	15
6.5 Marking	17
6.6 Packaging	17
7 Tests on matting	19
7.1 General	19
7.2 Visual inspection and measurements.....	19
7.3 Mechanical tests	21
7.4 Dielectric tests	23
7.5 Ageing tests	31
7.6 Thermal tests	31
7.7 Acid resistance.....	33
7.8 Oil resistance	35
8 Tests on matting with special properties.....	35
8.1 General	35
8.2 Category C – Extreme low temperature	35
9 Quality assurance plan and acceptance test	35
Annex A (normative) Marking symbol double triangle.....	37
Annex B (normative) List and classification of tests.....	39
Annex C (normative) Oil for tests for oil resistance	41
Annex D (normative) Sampling plans and procedures	43
Annex E (informative) Guidelines for the selection of the class of matting in relation to nominal voltage of a system.....	47
Annex F (informative) Acceptance tests	49
Annex G (informative) In-service recommendations	51

Figure A.1 – Symbols and symbol location.....	37
Figure 1 – Mechanical puncture (see 7.3.2).....	53
Figure 2 – Slip resistance set-up (see 7.3.3).....	55
Figure 3 – Test electrode for matting.....	57
Figure 4 – Polyethylene plates for extreme low temperatures (see 7.6.2 or 8.2).....	59
Table 1 – Recommended dimensions and tolerance.....	15
Table 2 – Maximum thickness.....	15
Table 3 – Electrode clearance.....	23
Table 4 – Test voltage.....	31
Table B.1 – General test procedure.....	39
Table C.1 – Characteristics of oil.....	41
Table D.1 – Classification of defects.....	43
Table D.2 – Sampling plan for minor defects.....	45
Table D.3 – Sampling plan for major defects.....	45
Table E.1 – Designation maximum use voltage.....	47

STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CLC/TS 61111:2007](https://standards.iteh.ai/catalog/standards/sist/a6e18b9c-e43f-46c2-a6b7-0257d4bd063a/sist-ts-clc-ts-61111-2007)

<https://standards.iteh.ai/catalog/standards/sist/a6e18b9c-e43f-46c2-a6b7-0257d4bd063a/sist-ts-clc-ts-61111-2007>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

MATTING OF INSULATING MATERIAL FOR ELECTRICAL PURPOSES

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61111 has been prepared by IEC technical committee 78: Tools for live working.

This consolidated version of IEC 61111 consists of the first edition (1992) [documents 78(CO)63/FDIS and 78(CO)67/RVD], its corrigendum May 2000 and its amendment 1 (2002) [documents 78/436/FDIS and 78/457/RVD].

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience.

It bears the edition number 1.1.

A vertical line in the margin shows where the base publication has been modified by corrigendum and amendment 1.

Annexes A, B, C and D form an integral part of this standard.

Annexes E, F and G are for information only.

The committee has decided that the contents of the base publication, its corrigendum May 2000 and its amendment will remain unchanged until 2008. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

MATTING OF INSULATING MATERIAL FOR ELECTRICAL PURPOSES

1 Scope

This International Standard is applicable to insulating matting made of elastomer for use as a floor covering for the electrical protection of workers on a.c. and d.c. installations.

1.1 Classes

Five classes for matting, differing in electrical characteristics, are provided and designated as: class 0, class 1, class 2, class 3 and class 4.

1.2 Categories

All matting shall be resistant to acid and oil, and low temperature; a category C of special property shall be resistant to extreme low temperature.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050(121):1978, *International Electrotechnical Vocabulary (IEV) – Chapter 121: Electromagnetism*

IEC 60050(151):1978, *International Electrotechnical Vocabulary (IEV) – Chapter 151: Electrical and magnetic devices*

IEC 60050(601):1985, *International Electrotechnical Vocabulary (IEV) – Chapter 601: Generation, transmission and distribution of electricity – General*

IEC 60060-1:1989, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60060-3:1976, *High-voltage test techniques – Part 3: Measuring devices*

IEC 60160:1963, *Standard atmospheric conditions for test purposes*

IEC 60212:1971, *Standard conditions for use prior to and during the testing of solid electrical insulating materials*

IEC 60417 (all parts), *Graphical symbols for use on equipment*

IEC 61318:1994, *Live working – Guidelines for quality assurance plans*

ISO 683-13:1986, *Heat-treatable steels, alloy steels and free-cutting steels – Part 13: Wrought stainless steels*

ISO 1302:1978, *Technical drawings – Method of indicating surface texture on drawings*

ISO 1817:1985, *Rubber, vulcanized – Determination of the effect of liquids*

ISO 2592:1973, *Petroleum products – Determination of flash and fire points – Cleveland open cup method*

ISO 2859-1:1999, *Sampling procedures for inspection by attributes – Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 2977:1989, *Petroleum products and hydrocarbon solvents – Determination of aniline point and mixed aniline point*

ISO 3104:1976, *Petroleum products – Transparent and opaque liquids – Determination of kinematic viscosity and calculation of dynamic viscosity*

ISO 9000:1987, *Quality management and quality assurance standards – Guidelines for selection and use*

ISO 9001:1987, *Quality systems – Model for quality assurance in design/development, production, installation and servicing*

ISO 9002:1987, *Quality systems – Model for quality assurance in production and installation*

ISO 9003:1987, *Quality systems – Model for quality assurance in final inspection and test*

3 Definitions **iTeh STANDARD PREVIEW** (standards.iteh.ai)

For the purpose of this International Standard, the following definitions apply.

[SIST-TS CLC/TS 61111:2007](https://standards.iteh.ai/catalog/standards/sist/a6e18b9c-e43f-46c2-a6b7-0257d4bd063a/sist-ts-clc-ts-61111-2007)

3.1 elastomer <https://standards.iteh.ai/catalog/standards/sist/a6e18b9c-e43f-46c2-a6b7-0257d4bd063a/sist-ts-clc-ts-61111-2007>

a generic term that includes rubbers, latex and elastomeric compounds that may be natural or synthetic, or a mixture or a combination of both

3.2 type test

a test on one or more devices made to a certain design to show that the design meets certain specifications

[IEV 151-04-15]

3.3 routine test

a test to which each individual device is subjected during or after manufacture to ascertain whether it complies with certain criteria

[IEV 151-04-16]

3.4 sampling test

a test performed on a number of devices taken at random from a batch

[IEV 151-04-17]

3.5 acceptance test

a contractual test to prove to the customer that the device meets certain conditions of its specification

[IEV 151-04-20]