SLOVENSKI STANDARD
SIST EN 60811-1-2:1999/A2:2002

01-april-2002

Materiali za izoliranje in oplaščenje električnih kablov - Splošne preskusne metode - 1-2. del: Področje uporabe - Metode toplotnega staranja - Dopolnilo A2 (IEC 60811-1-2:1985/A2:2000)

Insulating and sheathing materials of electric cables - Common test methods - Part 1-2: General application - Thermal ageing methods (IEC 60811-1-2:1985/A2:2000)

Isolier- und Mantelwerkstoffe für Kabel und isolierte Leitungen - Allgemeine Prüfverfahren - Teil 1-2: Allgemeine Anwendung - Thermische Alterung (IEC 60811-1-2:1985/A2:2000)

Matériaux d'isolation et de gainage des câbles électriques - Méthodes d'essais communes - Partie 1-2: Application générale - Méthodes de vieillissement thermique (CEI 60811-1-2:1985/A2:2000)

Ta slovenski standard je istoveten z: **EN 60811-1-2:1995/A2:2000**

ICS:

29.035.01	Izolacijski materiali na splošno	Insulating materials in general
29.060.20	Kabli	Cables

SIST EN 60811-1-2:1999/A2:2002 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60811-1-2/A2

December 2000

ICS 29.035.01;29.060.20
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English version

Insulating and sheathing materials of electric cables - Common test methods Part 1: General application Section 2: Thermal ageing methods (IEC 60811-1-2:1985/A2:2000)

Matériaux d'isolation et de gainage des câbles électriques -
Méthodes d'essais communes
Partie 1: Application générale
Section 2: Méthodes de vieillissement thermique
(CEI 60811-1-2:1985/A2:2000)

Isolier- und Mantelwerkstoffe für Kabel und isolierte Leitungen -
Allgemeine Prüfverfahren
Teil 1: Allgemeine Anwendung
Hauptabschnitt 2: Thermische Alterung
(IEC 60811-1-2:1985/A2:2000)

This amendment A2 modifies the European Standard EN 60811-1-2:1995; it was approved by CENELEC on 2000-11-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 Central Secretariat or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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

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

Foreword

The text of document 20/397/FDIS, future amendment 2 to IEC 60811-1-2:1985, prepared by IEC TC 20, Electric cables, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 60811-1-2:1995 on 2000-11-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2001-08-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2003-11-01

Endorsement notice

The text of amendment 2:2000 to the International Standard IEC 60811-1-2:1985 was approved by CENELEC as an amendment to the European Standard without any modification.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
60811-1-2

1985

AMENDEMENT 2
AMENDMENT 2
2000-07

Amendement 2

Méthodes d'essais communes pour les matériaux d'isolation et de gainage des câbles électriques et optiques –

Partie 1-2: Méthodes d'application générale – Méthodes de vieillissement thermique

Amendment 2

Common test methods for insulating and sheathing materials of electric and optical cables –

Part 1-2: Methods for general application – Thermal ageing methods

International Electrotechnical Commission 3, rue de Varembé Geneva, Switzerland
Telefax: +41 22 919 0300 e-mail: inmail@iec.ch IEC web site http://www.iec.ch

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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OREWORD

This amendment has been prepared by IEC technical committee 20: Electric cables.

The text of this amendment is based on the following documents:

FDIS	Report on voting
20/397/FDIS	20/410/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until 2006. At this date, the publication will be

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

Cover page, title page, page 5 and page 7

Amend the main title to read:

Common test methods for insulating and sheathing materials of electric and optical cables

Page 7

1 Scope

Add, to the end of the first paragraph, the following text:

..., and in offshore applications.

Page 9

8.1.2 Equipment

Delete the text of the final paragraph and insert the following new text:

Unless otherwise specified in the relevant cable specification a rotating fan inside the oven is allowed when testing rubber compounds. For all other compounds a fan shall not be used inside the oven, and in cases of dispute rubber compounds shall also be tested in an oven which is designed to operate without a fan rotating inside it.

Page 5 (Amendment 1)

8.1.3.1 Ageing of prepared test pieces of insulating material without conductor and of sheathing material

Delete the text of the fifth paragraph and insert the following new text:

Compounds of obviously different compositions shall not be tested at the same time in the same oven.

8.1.3.2 Ageing of prepared test pieces of cores with original conductor

Replace the text of this subclause by the following new text:

a) If, after ageing, the conductor and the separator, if any, can be removed without damaging the insulation, the procedure shall be as follows: samples of core, cut into pieces which are sufficiently long, shall be taken, preferably from positions close to that from which the samples for the tensile tests without ageing are taken in accordance with 9.1.3 of IEC 60811-1-1. They shall then be aged as described in 8.1.3.1, after which the conductor shall be removed and the cross-sectional area of the test pieces shall be determined according to 9.1.4 b) of IEC 60811-1-1. The tensile test shall then be carried out in accordance with 9.1.7 of IEC 60811-1-1.

b) If it is not possible to remove the conductor or the separator, if any, after the ageing procedure without damaging the insulation, the appropriate preparation and test method shall be applied as given in table 1.

Table 1 – Summary of ageing tests for insulated conductors in case of difficulties in preparing test pieces due to conductor insulation or separator adhesion during ageing

Class of copper conductor and conductor form	Test method
Class 1: plain copper	See 8.1.3.3 a) or if this method also gives rise to adhesion problems, see 8.1.3.4. Ageing followed by the bending test is considered the acceptance procedure in case of dispute
Class 1: metal coated or with a separator around the conductor	See 8.1.3.4
Class 2: circular conductors up to and including 16 mm^2 and having plain or metal coated wires and with or without separator as appropriate	See 8.1.3.4
Class 2: conductors above 16 mm^2, circular or shaped, and having plain or metal-coated wires	See 8.1.3.5
Classes 5 and 6: conductors up to and including 16 mm^2 having plain or metal-coated wires and with or without separator as appropriate	See 8.1.3.3 b) or if this method also gives rise to adhesion problems see 8.1.3.4. Ageing followed by the bending test is considered the acceptance procedure in case of dispute
Classes 5 and 6: conductors above 16mm^2 having plain or metal-coated wires	See 8.1.3.5
NOTE In the case of the bending test (8.1.3.4), ageing conditions may be different from those requiring the determination of tensile properties (8.1.3.2 and 8.1.3.3); see the relevant cable standard.	

Page 7 (Amendment 1)

8.1.3.3 Ageing of tubular test pieces with a solid plain conductor having a reduced diameter

Replace the title and the text of this subclause by the following:

8.1.3.3 Ageing of tubular test pieces with a reduced conductor

a) Solid plain conductor with reduced diameter

After preparation of five test pieces in accordance with item b) of 9.1.3 of IEC 60811-1-1 a piece of solid plain conductor, having a diameter reduced by up to 10 % shall be reinserted. This shall be achieved by stretching the original conductor or by using a conductor having the required smaller diameter.

These test pieces shall then be aged as described in 8.1.3.1 after which the reduced conductor shall be removed and the cross-sectional area of the tubular test pieces shall be determined according to 9.1.4 of IEC 60811-1-1, followed by the determination of the tensile properties according to 9.1.7 of the same standard.

b) Class 5 and class 6 conductor with a reduced number of wires.

The preparation of five test pieces shall be carried out in accordance with item b) of 9.1.3 of IEC 60811-1-1. For this purpose, either approximately 30 % of the wires forming the conductor may be removed out of the insulation or approximately 70 % of the wires may be reinserted into the tubular test piece.

These test pieces shall then be aged as described in 8.1.3.1 after which the reduced conductor shall be removed and the cross-sectional area of the tubular test pieces shall be determined according to 9.1.4 of IEC 60811-1-1, followed by the determination of the tensile properties according to 9.1.7 of the same standard.

Page 9 (Amendment 1)

8.1.3.4 Ageing and bending test on test pieces of cores

Replace the existing subclause by the following:

a) Sampling and preparation of test pieces

Two pieces of suitable length shall be taken from each core to be tested preferably from positions close to that from which the samples for the tensile tests without ageing are taken (see IEC 60811-1-1).

b) Ageing procedure

The test pieces shall be placed substantially in the middle of the oven so that each piece is at least 20 mm from any other piece. They shall be supported at both ends and the insulation shall not contact any other object. The test pieces shall not occupy more than 2 % of the volume of the oven, and they shall be kept in the oven at the temperature and for the time specified in the relevant standard for the type of cable.

c) Bending procedure

As soon as the ageing period is completed, the test pieces shall be removed from the oven and left at ambient temperature, avoiding direct sunlight, for at least 16 h.

Each test piece shall then be bent at ambient temperature around a mandrel so as to form a close helix.