

# SLOVENSKI STANDARD

## SIST EN 60811-5-1:2000

01-september-2000

Nadomešča:

SIST HD 505.5.1 S1:1998

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**Materiali za izoliranje in oplačenje električnih in optičnih kablov - Splošne preskusne metode - 5-1. del: Posebne metode za polnilne mase - Točka kapljanja - Ločevanje olja - Krhkost pri nizki temperaturi - Celotna kislost - Odsotnost korozivnih sestavin - Permitivnost pri 23 °C - Rezistivnost pri 23 °C in 100 °C**

Insulating and sheathing materials of electric and optical cables - Common test methods - Part 5-1: Methods specific to filling compounds - Drop point - Separation of oil - Lower temperature brittleness - Total acid number - Absence of corrosive components - Permittivity at 23 °C - D.C. resistivity at 23 °C and 100 °C

Isolier- und Mantelwerkstoffe für Kabel und isolierte Leitungen - Allgemeine Prüfverfahren -- Teil 5-1: Besondere Prüfverfahren für Füllmassen - Tropfpunkt - Ölabscheidung - Kälterissbeständigkeit - Gesamtsäurezahl - Abwesenheit korrosiver Bestandteile - Dielektrizitätskonstante bei 23 °C - Gleichstromwiderstand bei 23 °C und 100 °C



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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60811-5-1**

May 1999

ICS 29.035.01

Supersedes HD 505.5.1 S1:1992

English version

**Insulating and sheathing materials of electric and optical fibre cables**  
**Common test methods**  
**Part 5: Methods specific to filling compounds**  
**Section 1: Drop point - Separation of oil - Lower temperature brittleness**  
**Total acid number - Absence of corrosive components - Permittivity at 23 °C**  
**D.C. resistivity at 23 °C and 100 °C**  
(IEC 60811-5-1:1990, modified)

Matériaux d'isolation et de gainage des câbles  
électriques et des câbles à fibres optiques  
Méthodes d'essais communes  
Partie 5: Méthodes spécifiques pour les  
matières de remplissage  
Section 1: Point de goutte - Séparation d'huile  
Fragilité à basse température - Indice d'acide  
total - Absence de composés corrosifs  
Permittivité à 23 °C - Résistivité en courant  
continu à 23 °C et 100 °C  
(CEI 60811-5-1:1990, modifiée)

Isolier- und Mantelwerkstoffe für Kabel und  
isolierte Leitungen - Allgemeine Prüfverfahren  
Teil 5: Besondere Prüfverfahren für Füllmassen  
Hauptabschnitt 1: Tropfpunkt - Ölabscheidung  
Kälterißbeständigkeit - Gesamtsäurezahl  
Abwesenheit korrosiver Bestandteile  
Dielektrizitätskonstante bei 23 °C  
Gleichstromwiderstand bei 23 °C und 100 °C  
(IEC 60811-5-1:1990, modifiziert)

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This European Standard was approved by CENELEC on 1999-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard 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 European Standard 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 the International Standard IEC 60811-5-1:1990, prepared by IEC TC 20, Electric cables, together with common modifications prepared by the Technical Committee CENELEC TC 20, Electric cables, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 60811-5-1 on 1999-04-01.

This European Standard supersedes HD 505.5.1 S1:1992.

Where reference is made to HD 505.5.1 S1:1992 (IEC 60811-5-1:1990) in another standard, users should refer to this EN 60811-5-1:1998 for the current information.

The following dates were fixed:

- latest date by which the EN has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 2000-04-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2001-04-01

Annexes designated "normative" are part of the body of the standard.  
In this standard, annexes A and ZA are normative.  
Annex ZA has been added by CENELEC.

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**Endorsement notice**

The text of the International Standard IEC 60811-5-1:1990 was approved by CENELEC as a European Standard with agreed common modifications as given below.

**COMMON MODIFICATIONS****Title**

Amend the first section of the title to read:

Insulating and sheathing materials of electric and optical fibre cables - Common test methods.

**1 Scope**

Replace the first paragraph by:

This standard specifies the test methods for filling compounds of electric and optical fibre cables used with telecommunications equipment.

**3 Applicability**

Replace the text of clause 3 by:

Conditioning values and testing parameters are either specified in the materials specifications or in the product specifications.

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

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 (including amendments).

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 60247	1978	Measurement of relative permittivity, dielectric dissipation factor and d.c. resistivity of insulating liquids	-	-

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NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC

811-5-1

Première édition  
First edition  
1990-02

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

**Cinquième partie:**

**Méthodes spécifiques pour les matières  
de remplissage**

**Section un — Point de goutte — Séparation**

**d'huile — Fragilité à basse température —**

**Indice d'acide total — Absence de composés**

**corrosifs — Permittivité à 23 °C — Résistivité  
en courant continu à 23 °C et 100 °C**

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

**Part 5:**

**Methods specific to filling compounds**

**Section One — Drop-point — Separation of oil —**

**Lower temperature brittleness — Total acid**

**number — Absence of corrosive components —**

**Permittivity at 23 °C — D.C. resistivity at 23 °C  
and 100 °C**

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International Electrotechnical Commission  
Международная Электротехническая Комиссия

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For price, see current catalogue



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMON TEST METHODS FOR INSULATING AND SHEATHING MATERIALS  
OF ELECTRIC CABLES

Part 5: Methods specific to filling compounds  
 Section One - Drop-point - Separation of oil -  
 Lower temperature brittleness - Total acid number -  
 Absence of corrosive components - Permittivity at 23 °C -  
 D.C. resistivity at 23 °C and 100 °C

## FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

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## SIST EN 60811-5-1:2000

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This standard has been prepared by IEC Technical Committee No. 46: Cables, wires, waveguides, R.F. connectors and accessories for communication and signalling.

(The 811 publication series has been taken over by Technical Committee No. 20: Electric cables.)

The text of this standard is based upon the following documents:

Six Months' Rule	Report on Voting
46(C0)28	46(C0)31

Full information on the voting for the approval of this standard can be found in the Voting Report indicated in the above table.

The following IEC publication is quoted in this standard:

Publication No. 247 (1978): Measurement of relative permittivity, dielectric dissipation factor and d.c. resistivity of insulating liquids.

## COMMON TEST METHODS FOR INSULATING AND SHEATHING MATERIALS OF ELECTRIC CABLES

Part 5: Methods specific to filling compounds  
 Section One - Drop-point - Separation of oil -  
 Lower temperature brittleness - Total acid number -  
 Absence of corrosive components - Permittivity at 23 °C -  
 D.C. resistivity at 23 °C and 100 °C

### 1. Scope

This standard specifies the test methods for filling compounds of electric cables used with telecommunication equipment.

This Section One of Part 5 gives the methods for drop-point, separation of oil, lower temperature brittleness, total acid number, absence of corrosive components, permittivity at 23 °C, d.c. resistivity at 23 °C and 100 °C.

### 2. Test values

Any test requirements which are given in this standard may be modified by the relevant cable standard to suit the needs of a particular type of cable.

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### 3. Applicability

Conditioning values and testing parameters are specified for the most common types of insulating and sheathing compounds and of cables, wires and cords.

### 4. Drop-point

*Note.*- These tests are intended for classification purposes only.

#### 4.1 General

The drop-point test may be used as an indication of the maximum temperature to which a filling compound can be exposed without complete liquefaction or excessive oil separation.

#### 4.2 Method A (reference method)

##### 4.2.1 Apparatus

A chromium plated brass cup conforming to the dimensions shown in figure 1.