

**Elektrilised kaablid ja optilised kiudkaablid.
Mittemetallmaterjalide katsetusviisid. Osa 410:
Mitmesugused katsetused. Polüolefiinisolatsiooniga
soonte vaskkatalüütilise oksüdatsioonidegradeerumise
katsetamisviis**

**Electric and optical fibre cables - Test methods for non-
metallic materials - Part 410: Miscellaneous tests - Test
method for copper-catalyzed oxidative degradation of
polyolefin insulated conductors**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60811-410:2012 sisaldab Euroopa standardi EN 60811-410:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 60811-410:2012 consists of the English text of the European standard EN 60811-410:2012.
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English version

**Electric and optical fibre cables -
Test methods for non-metallic materials -
Part 410: Miscellaneous tests -
Test method for copper-catalyzed oxidative degradation of polyolefin
insulated conductors
(IEC 60811-410:2012)**

Câbles électriques et à fibres optiques -
Méthodes d'essai pour les matériaux non-
métalliques -
Partie 410: Essais divers -
Méthode d'essai pour la mesure de la
dégradation par oxydation catalytique par
le cuivre des conducteurs isolés aux
polyoléfines
(CEI 60811-410:2012)

Kabel, isolierte Leitungen und
Glasfaserkabel -
Prüfverfahren für nichtmetallene
Werkstoffe -
Teil 410: Sonstige Prüfungen -
Prüfverfahren für die Sauerstoffalterung
unter Kupfereinfluss für polyolefinisolierte
Leiter
(IEC 60811-410:2012)

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 20/1294/FDIS, future edition 1 of IEC 60811-410, prepared by IEC/TC 20 "Electric cables" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60811-410:2012.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-01-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-04-16

This document supersedes Annex B of EN 60811-4-2:2004 (partially). Full details of the replacements are shown in Annex A of EN 60811-100:2012.

There are no technical changes with respect to EN 60811-4-2:2004, but see the Foreword to EN 60811-100:2012.

This standard is to be read in conjunction with EN 60811-100.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 60811-410:2012 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

**Normative references to international publications
with their corresponding European publications**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 60811-100	2012	Electric and optical fibre cables - Test methods for non-metallic materials - Part 100: General	EN 60811-100	2012

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INTRODUCTION

The IEC 60811 series specifies the test methods to be used for testing non-metallic materials of all types of cables. These test methods are intended to be referenced in standards for cable construction and for cable materials.

NOTE 1 Non-metallic materials are typically used for insulating, sheathing, bedding, filling or taping within cables.

NOTE 2 These test methods are accepted as basic and fundamental and have been developed and used over many years principally for the materials in all energy cables. They have also been widely accepted and used for other cables, in particular optical fibre cables, communication and control cables and cables for ships and offshore applications.

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ELECTRIC AND OPTICAL FIBRE CABLES – TEST METHODS FOR NON-METALLIC MATERIALS –

Part 410: Miscellaneous tests – Test method for copper-catalyzed oxidative degradation of polyolefin insulated conductors

1 Scope

This Part 410 of IEC 60811 gives the procedure for copper-catalyzed oxidative degradation of a polyolefin, which is typically used for insulation in communication cables.

Full test conditions, such as temperature, duration, etc. and full test requirements are not specified in this standard; it is intended that they should be specified by the standard dealing with the relevant type of cable.

2 Normative references

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

IEC 60811-100:2012, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 100: General*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60811-100 apply.

4 Test method

4.1 General

The need for a manufacturer to monitor his cable production to ensure that it has adequate resistance to oxidation is well established. The Oxidation Induction Time (OIT) test has been found suitable for monitoring both raw materials and cables for compliance with this requirement, once suitable materials have been selected. The OIT test is not suitable for the selection of materials. For this purpose, long-term thermal ageing tests are preferred.

4.2 Apparatus

For the purposes of this test, the different equipment used is as follows:

- a) A differential thermal analyser or differential scanning calorimeter, capable of heating at rates of up to at least (20 ± 1) K/min and maintaining the test temperature isothermally within 0,2 K and of automatic recording of differences in temperature (or differences in heat transfer) between the sample and a reference material to the required sensitivity and precision.
- b) A recorder capable of displaying heat flow or temperature difference on the Y-axis, and time on the X-axis. The time base shall be accurate to ± 1 % and be readable to 0,1 min.
- c) A gas-selector switch and regulators for high-purity nitrogen and oxygen.