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(en)

Communication cables - Specifications for test methods - Part 4-17: Test methods for UV resistance evaluation of the sheath of electrical and optical fibre cable

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VOORBEELD
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Nederlands Elektrotechnisch Comité

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<u>vermelde norm</u>	<u>Nederlandse norm</u>	<u>titel</u>
EN 60811-1-1:1995	NEN 10811-1-1:1996	Elektrische leidingen - Isolatie- en mantelmaterialen - Gemeenschappelijke beproevingsmethoden - Deel 1: Algemene toepassing - Sectie 1: Dikten en buitenafmetingen - Mechanische eigenschappen
EN ISO 4892-1:2000	NEN-EN-ISO 4892-1:2000	Kunststoffen - Methoden om monsters aan laboratoriumlichtbronnen bloot te stellen - Deel 1: Algemene leidraad
EN ISO 4892-2:2006	NEN-EN-ISO 4892-2:2006	Kunststoffen - Blootstellings-methode aan laboratoriumlichtbronnen bloot te stellen - Deel 2: Xenon booglampen
EN ISO 4892-3:2006	NEN-EN-ISO 4892-3:2006	Kunststoffen - Methoden van blootstelling aan laboratoriumlichtbronnen - Deel 3: Fluorescerende UV lampen
ISO 9370	NEN-ISO 9370	Kunststoffen - Instrumentele bepaling van de blootstelling aan straling bij verouderingsproeven - Algemene leidraad en fundamentele beproevingsmethode

Preview

Voorbeeld
Preview

English version

**Communication cables -
Specifications for test methods -
Part 4-17: Test methods for UV resistance evaluation of the sheath of
electrical and optical fibre cable**

Câbles de communication -
Spécifications des méthodes d'essais -
Partie 4-17: Méthodes d'essai pour
évaluer la résistance aux UV des gaines
des câbles électriques et des câbles à
fibre optique

Kommunikationskabel -
Spezifikationen für Prüfverfahren -
Teil 4-17: Prüfverfahren zur Beurteilung
der UV-Beständigkeit der Mäntel
elektrischer und optischer Kabel

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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.

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CENELEC

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

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Foreword

This European Standard was prepared by Joint Working Group 2 of the Technical Committee CENELEC TC 46X, Communication cables, and the Technical Committee CENELEC TC 86A, Optical fibres and optical fibre cables.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50289-4-17 on 2011-02-01.

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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) 2012-02-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2014-02-01

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Introduction

UV hazard assessment for synthetic compounds is possible using a number of UV sources. For the purposes of this European Standard three alternative methods are given.

Method A uses a xenon arc source to simulate the UV effect on cable sheath. The effect is measured by the variation of mechanical characteristics after exposure.

Method B uses a fluorescent lamp to simulate the UV effect on cable sheath. Two different lamps may be used; type I (called UV-A lamps) and type II (called UV-B lamps). The effect is measured as for method A, by the variation of mechanical characteristics after exposure.

Method C uses mercury vapour lamp to simulate the UV effect on cable sheath. As for methods A and B, the effect is determined by the variation of mechanical characteristics after exposure.

For outdoor cable application only, the test specimens are periodically subjected to water attack, for methods A and B.

For method C, the test is made without water but the results (see Note in 4.1.3.1) indicate it is applicable to outdoor environments.

Other sources and determination methods are capable of detecting and analysing the UV hazard for a cable sheath. Examples of such methods are metal halide lamps or sunshine carbon arc lamps, in combination with proper filters in order to cut off most radiation having wavelengths lower than 290 nm. Contracting parties may agree to use such other methods, but such methods cannot claim conformity to EN 50289-4-17. If used, it is recommended that such methods have at least equivalent sensitivity and detection levels as those in this European Standard.

In case of dispute the reference source to use is the arc xenon source as described in method A.

Informative Annex C gives results obtained with round robin test done for the elaboration of the present standard.

NOTE It is important to recall the introduction to EN ISO 4892-1:2000 which says: "The relative durability of materials in actual-use exposures can be very different depending on the location of the exposure because of differences in UV radiation, time of wetness, temperature, pollutants and other factors. Therefore, even if results from a specific accelerated laboratory test are found to be useful for comparing the relative durability of materials exposed in a particular outdoor location or in particular actual-use conditions, it cannot be assumed that they will be useful for determining the relative durability of materials exposed in a different outdoor location or in different actual-use conditions."

1 Scope

This European Standard describes three methods to determine the UV resistance of sheath materials for electric and for optical fibre cables. These tests apply for outdoor and indoor cable applications according to the product standard. The samples of sheath are taken from the finished cables.

NOTE Although this test method standard is written principally for communication cables, it may be used for energy cables if called up by the relevant product standard.

Methods differ by the nature of the UV source.

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.

EN 60811-1-1:1995 A1:2001	Insulating and sheathing materials of electric and optical cables – Common test methods – Part 1-1: General application – Measurement of thickness and overall dimensions – Tests for determining the mechanical properties (IEC 60811-1-1:1993 + A1:2001)
EN ISO 4892-1:2000	Plastics – Methods of exposure to laboratory light sources – Part 1: General guidance (ISO 4892-1:1999)
EN ISO 4892-2:2006	Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps (ISO 4892-2:2006)
EN ISO 4892-3:2006	Plastics – Methods of exposure to laboratory light sources – Part 3: Fluorescent UV lamps (ISO 4892-3:2006)
ISO 9370	Plastics – Instrumental determination of radiant exposure in weathering tests – General guidance and basic test method

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 tensile strength

maximum tensile stress recorded in extending the test specimen to breaking point

3.2 elongation at break

increase of the reference length of the test specimen, expressed as the percentage of the reference length of the unstretched test specimen, at breaking point

3.3 median value

when several test results have been obtained and ordered in an increasing or decreasing succession, middle value if the number of available value is odd, and mean of the two middle values if the number is even

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