

Soovitavad katsetusmeetodid polüvinüülkloriidisolatsiooniga ja - mantliga kaablite plastifikaatori eraldumise riski hindamiseks

Recommended test method for assessment of the
risk of plasticizer exudation from PVC insulated and
sheathed cables

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 50497:2007 sisaldab Euroopa standardi EN 50497:2007 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 17.12.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 50497:2007 consists of the English text of the European standard EN 50497:2007.</p> <p>This document is endorsed on 17.12.2007 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>The test method described in this European Standard shows, by the use of accelerated testing, discrete exudation of plasticizer from PVC insulated and sheathed cables. It is for use in circumstances where the manufacturer determines that there may be a specific risk that cannot be assessed only by use of the compatibility test in EN 60811-1-2, Subclause 8.1.4.</p>	<p>Scope:</p> <p>The test method described in this European Standard shows, by the use of accelerated testing, discrete exudation of plasticizer from PVC insulated and sheathed cables. It is for use in circumstances where the manufacturer determines that there may be a specific risk that cannot be assessed only by use of the compatibility test in EN 60811-1-2, Subclause 8.1.4.</p>
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ICS 29.035.20

Võtmesõnad:

**Recommended test method for assessment of the risk
of plasticizer exudation from PVC insulated and sheathed cables**

Méthode d'essai recommandée
pour l'évaluation du risque d'exsudation
de plastifiant des gaines des câbles
et des isolants en PVC

Empfohlenes Prüfverfahren
zur Einschätzung des Risikos
von Weichmacherausschwitzungen
bei PVC-isolierten und -ummantelten
Kabeln und Leitungen

This European Standard was approved by CENELEC on 2007-11-01. 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.

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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 the Technical Committee CENELEC TC 20, Electric cables, in response to CLC/TC 20 (AT) 42.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50497 on 2007-11-01.

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) 2008-11-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2009-11-01

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Introduction

PVC, by its nature, requires the addition of chemical agents (plasticizers, extenders) in order to generate useful and effective electrical grade materials for cable insulation and sheathing having suitable flexibility. Use over many decades has shown that exceptional and unexpected circumstances, coupled with particular installation conditions, may generate unfavourable conditions in which the plasticizer or extender dissociates from the body of the cable material and exudes from it. This is undesirable as it progressively alters the characteristics of the PVC and, in extreme cases, may lead to cracking, or it could damage surrounding components. It is also aesthetically unpleasing and, if it drips or drains in discrete amounts, may become a serious nuisance and may cause concern.

In practice the phenomenon is rare, because material suppliers and cable manufacturers have developed controls for cable grade PVC compounds. These controls begin with material selection tests to screen out unsuitable additives. Such tests are described, for example, in ASTM D3291-97:2003.

Furthermore, PVC insulated and sheathed cables made to recognised standards are required to conform to the compatibility test in EN 60811-1-2, 8.1.4. In the vast majority of cases these actions are sufficient to prevent exudation in service.

It is not possible to determine every type of assembly into which a cable may be placed, nor every installation condition, including thermal condition, that may be experienced. However, where additional assurances and tests are deemed necessary, it is recommended that the method in this European Standard should be used.

1 Scope

The test method described in this European Standard shows, by the use of accelerated testing, discrete exudation of plasticizer from PVC insulated and sheathed cables. It is for use in circumstances where the manufacturer determines that there may be a specific risk that cannot be assessed only by use of the compatibility test in EN 60811-1-2, 8.1.4.

This method is intended as a qualitative test on the completed product and not an individual material test.

NOTE 1 Information on the background to use of the test is given in the Introduction.

NOTE 2 Although any exudation is most likely to be of plasticizer, other components may also exude and, for the purposes of this standard, are treated equally in this test.

NOTE 3 The method has been developed with special reference to PVC/PVC cables. No recommendation is given as to its use with cables based on other insulation and sheathing materials.

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 60811-1-2 1995 Insulating and sheathing materials of electric cables – Common test methods – Part 1-2: General application – Thermal ageing methods (IEC 60811-1-2:1985 + A1:1989 + corr. May 1986)

3 Terms and definitions

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

3.1

compatibility

ability of the plasticizer to be retained by the bulk compound or base resin

NOTE High compatibility indicates good retention by the bulk compound.

3.2

plasticizer

substance incorporated into a material to increase its flexibility, softness, distensibility, or workability

NOTE Plasticizers typically consist of high boiling point, oily, organic liquids.

3.3

exudation

visible presence of plasticizer on the surface of the cable, or dripping from the cable

3.4

operating temperature

maximum permitted conductor temperature of the completed product

4 Test method

4.1 Apparatus

The apparatus includes the ordinary laboratory apparatus, and

- a) air circulating oven in accordance with EN 60811-1-2,
- b) filter or cigarette paper,
- c) chamber capable of sub-zero temperatures.