



National Standards Authority of Ireland

IRISH STANDARD

I.S. EN 50414:2006

ICS 29.035.20

**TEST METHODS FOR ANALYSIS OF LEAD
IN PVC TAKEN FROM INSULATION AND
SHEATH OF ELECTRIC AND OPTICAL
FIBRE CABLES - METHOD A: TOTAL LEAD
CONTENT DETERMINATION WITH FLAME
EXCITATION ATOMIC ABSORPTION
SPECTROMETRY - METHOD B:
QUALITATIVE ANALYSIS OF LEAD BY
LEAD SULPHIDE STAINING**

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EUROPEAN STANDARD

EN 50414

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2006

ICS 29.035.20

English version

**Test methods for analysis of lead in PVC taken from insulation
and sheath of electric and optical fibre cables -
Method A: Total lead content determination
with flame excitation atomic absorption spectrometry -
Method B: Qualitative analysis of lead by lead sulphide staining**

Méthodes d'analyse du plomb
dans le PVC prélevé de l'enveloppe
isolante et des gaines des câbles
électriques et à fibres optiques -
Méthode A: Détermination de la teneur
totale en plomb par spectrométrie
atomique d'absorption dans la flamme -
Méthode B: Analyse qualitative du plomb
par production de sulfure de plomb

Prüfverfahren für die Analyse von Blei
in PVC entnommen aus Isolierung
und Mantel von Kabeln, isolierten
Leitungen und Lichtwellenleiterkabeln -
Verfahren A: Bestimmung
des Gesamtbleigehalts mit der Flammen-
Atomabsorptionsspektrometrie -
Verfahren B: Qualitative Analyse
des Bleigehalts durch Bleisulfidverfärbung

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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

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

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 20, Electric cables.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50414 on 2006-03-01.

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) 2007-03-01
 - latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2009-03-01
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Introduction

The determination of small quantities of lead in PVC is possible using a number of analytical techniques. For the purposes of this European Standard two alternative methods are given.

Method A uses flame excitation atomic absorption spectrometry, for the total lead determination in the PVC.

Method B uses a qualitative method for the analysis of lead in the PVC. The method utilises the lead sulfide staining test and is therefore best suited to light coloured or natural materials. It can be considered to be a spot check for the presence of lead or lead compounds.

Other decomposition and determination methods are capable of detecting and analysing small amounts of lead in cable grade PVC. Examples of such methods are X-ray fluorescence spectroscopy, graphite furnace atomic absorption spectrometry, inductively coupled plasma spectrometry and polarography. Contracting parties may agree to use such other methods, but such methods cannot claim conformity to EN 50414. If used, it is recommended that such methods have at least equivalent sensitivity and detection levels as those in this EN.

1 Scope

This European Standard describes two methods for the analysis of lead in PVC-insulating and sheathing materials for electric and for optical fibre cables. The samples of PVC are taken from the finished cable.

Method A provides a quantitative method and Method B provides a qualitative method.

NOTE 1 Users may refer to either Method A or Method B or to both methods.

NOTE 2 Other methods of determination not specified here are known to be capable of achieving equivalent results, but do not conform to this EN (see "Introduction").

Both Method A and Method B are applicable to products having a total lead content greater than or equal to 0,01 %.

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>
EN ISO 1042	1999	Laboratory glassware - One-mark volumetric flasks (ISO 1042:1998)
EN ISO 3696	1995	Water for analytical laboratory use - Specification and test methods (ISO 3696:1987)
ISO 385-1	1984	Laboratory glassware - Burettes - Part 1: General requirements
ISO 5725	Series	Accuracy (trueness and precision) of measurement methods and results
ISO 6503	1984	Paints and varnishes - Determination of total lead - Flame atomic absorption spectrometric method

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