

# FINAL VERSION

# VERSION FINALE



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## Sample preparation for measurement of mercury level in fluorescent lamps

**Préparation des échantillons en vue de la mesure du niveau de mercure dans les lampes fluorescentes**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### SAMPLE PREPARATION FOR MEASUREMENT OF MERCURY LEVEL IN FLUORESCENT LAMPS

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**This Consolidated version of IEC 62554 bears the edition number 1.1. It consists of the first edition (2011-08) [documents 34A/1484/FDIS and 34A/1502/RVD] and its amendment 1 (2017-10) [documents 34A/1997/CDV and 34A/2028/RVC]. The technical content is identical to the base edition and its amendment.**

**This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.**

International Standard IEC 62554 has been prepared by subcommittee 34A: Lamps, of IEC technical committee 34: Lamps and related equipment.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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## INTRODUCTION

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IEC takes no position concerning the evidence, validity and scope of this patent right.

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According to IEC SMB 136/7 decision, the technical committee decided to remove designation of a reference method.

## INTRODUCTION to Amendment 1

IEC 62554 specifies the method of sample preparation for the measurement of mercury level in fluorescent lamps. It refers to IEC 62321:2008 for the technique for determining the amount of mercury.

In the meantime it has been found that for fluorescent lamps, some of the techniques specified in IEC 62321 can lead to inaccurate and misleading results and in addition this standard has been split into several parts.

In bilateral discussions between members of subcommittee 34A and technical committee 111, it was agreed to update the relevant part of IEC 62321 and the reference made to it in IEC 62554. Amendment 1 to IEC 62321-4 has now been published (IEC 62321-4:2013/AMD1:2017).

## SAMPLE PREPARATION FOR MEASUREMENT OF MERCURY LEVEL IN FLUORESCENT LAMPS

### 1 Scope

This International Standard specifies sample preparation methods for determining mercury levels in new tubular fluorescent lamps (including single capped, double capped, self-ballasted and CCFL for backlighting) containing 0,1 mg mercury or more. The intended resolution of the methods described in this standard is of the order of 5 %.

Mercury level measurement of spent lamps is excluded, as during lamp operation, mercury gradually diffuses into the glass wall and reacts with the glass materials. The test method of this standard does not recover mercury that is diffused into or reacted with or otherwise incorporated irreversibly with the glass wall of discharge tubes.

This standard does not contain information on measurement. Measurement is specified in IEC 62321.

### 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.

ISO/IEC 17025:2005, *General requirements for the competence of testing and calibration laboratories*

IEC 62321-4:2013, *Determination of certain substances in electrotechnical products – Part 4: Mercury in polymers, metals and electronics by CV-AAS, CV-AFS, ICP-OES and ICP-MS*  
IEC 62321-4:2013/AMD1:2017

ISO 3696:1987, *Water for analytical laboratory use – Specification and test methods*

### 3 Terms and definitions

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

#### 3.1

##### **new lamp**

a lamp that has not been energized since manufacture

#### 3.2

##### **cold cathode fluorescent lamp (CCFL) for backlighting**

small diameter fluorescent lamp having cold cathode in the lamp, in which most of light is emitted by the excitation of phosphors coated in discharge tube and used as backlight in LCD

#### 3.3

##### **external electrode fluorescent lamp (EEFL) for backlighting**

small diameter fluorescent lamp having cold cathode attached outside the lamp, in which most of light is emitted by the excitation of phosphors coated in discharge tube and used as backlighting in LCD

EEFL is a subtype in CCFL lamp group.