



**NSAI**  
Standards

Irish Standard  
I.S. EN 60754-1:2014

# Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content

**I.S. EN 60754-1:2014**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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*This document is based on:*

EN 60754-1:2014

*Published:*

2014-04-18

*This document was published under the authority of the NSAI and comes into effect on:*

2014-08-01

ICS number:

NOTE: If blank see CEN/CENELEC cover page

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EUROPEAN STANDARD

**EN 60754-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2014

ICS 13.220.40; 29.020; 29.060.20

Supersedes EN 50267-1:1998 (partially), EN 50267-2-1:1998 (partially), EN 50267-2-2:1998 (partially), EN 50267-2-3:1998 (partially)

English version

**Test on gases evolved during combustion of materials from cables -  
Part 1: Determination of the halogen acid gas content  
(IEC 60754-1:2011 + corrigendum Nov. 2013)**

Essai sur les gaz émis lors de la  
combustion des matériaux prélevés  
sur câbles -  
Partie 1: Détermination de la quantité  
de gaz acide halogéné  
(CEI 60754-1:2011 + corrigendum Nov.  
2013)

Prüfung der bei der Verbrennung der  
Werkstoffe von Kabeln und isolierten  
Leitungen entstehenden Gase -  
Teil 1: Bestimmung des Gehaltes an  
Halogenwasserstoffsäure  
(IEC 60754-1:2011 + Corrigendum Nov.  
2013)

This European Standard was approved by CENELEC on 2014-01-27. 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 CEN-CENELEC Management Centre or to any CENELEC member.

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

This document (EN 60754-1:2014) consists of the text of IEC 60754-1:2011 + corrigendum November 2013, prepared by IEC/TC 20 "Electric cables".

The following dates are fixed:

- latest date by which the document has to be (dop) 2015-01-27  
implemented at national level by  
publication of an identical national  
standard or by endorsement
- latest date by which the national (dow) 2017-01-27  
standards conflicting with the  
document have to be withdrawn

This document supersedes EN 50267-1:1998 (PART), EN 50267-2-1:1998 (PART), EN 50267-2-2:1998 (PART) and EN 50267-2-3:1998 (PART).

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 60754-1:2011 + corrigendum November 2013 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated :

IEC 60684-2      NOTE      Harmonized as EN 60684-2.

## 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>
ISO 385	-	Laboratory glassware - Burettes	EN ISO 385	-
ISO 1042	-	Laboratory glassware - One-mark volumetric flasks	EN ISO 1042	-
ISO 3696	-	Water for analytical laboratory use - Specification and test methods	EN ISO 3696	-

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**IEC 60754-1**  
(Third edition – 2011)

**Test on gases evolved during combustion of  
materials from cables –**

**Part 1: Determination of the halogen acid gas  
content**

**CEI 60754-1**  
(Troisième édition – 2011)

**Essai sur les gaz émis lors de la  
combustion des matériaux prélevés sur câbles –**

**Partie 1: Détermination de la quantité de gaz  
acide halogéné**

## **CORRIGENDUM 1**

*This corrigendum concerns the French text  
only.*

*Remplacer, dans le titre du document, les  
mots*

*"matériaux des câbles"*

*par*

*"matériaux prélevés sur câbles"*

*dans les éléments suivants:*

- *la page de la couverture (une fois);*
- *la page du titre (une fois);*
- *l'Avant-propos (deux fois);*
- *l'Introduction (une fois); et*
- *au-dessus du Domaine d'application  
(une fois)*

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**IEC 60754-1**

Edition 3.0 2011-11

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**

GROUP SAFETY PUBLICATION  
PUBLICATION GROUPEE DE SÉCURITÉ

**Test on gases evolved during combustion of materials from cables –  
Part 1: Determination of the halogen acid gas content**

**Essai sur les gaz émis lors de la combustion des matériaux prélevés sur câbles  
– Partie 1: Détermination de la quantité de gaz acide halogéné**





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**IEC 60754-1**

Edition 3.0 2011-11

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**

GROUP SAFETY PUBLICATION  
PUBLICATION GROUPEE DE SÉCURITÉ

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Part 1: Determination of the halogen acid gas content**

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– Partie 1: Détermination de la quantité de gaz acide halogéné**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

PRICE CODE  
CODE PRIX

**S**

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ICS 13.220.40; 29.020; 29.060.20

ISBN 978-2-88912-715-3

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**TEST ON GASES EVOLVED DURING  
COMBUSTION OF MATERIALS FROM CABLES –****Part 1: Determination of the halogen acid gas content**

## FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60754-1 has been prepared by IEC technical committee 20: Electric cables.

It has the status of a group safety publication in accordance with IEC Guide 104.

This third edition cancels and replaces the second edition, published in 1994, and constitutes a technical revision.

The significant technical changes with respect to the previous edition are as follows:

- improved definition of safety requirements relating to capture of gases and use of reagents;
- introduction of guidance on preparation of test specimens for a more even combustion;
- improvements to the procedure for establishing the heating regime;
- improved expression of tolerances and precision;

- definition of the procedure for the blank test;
- introduction of an informative annex giving details of a methodology for the determination of the halogen acid gas content of a sample representative of a cable construction.

The text of this standard is based on the following documents:

FDIS	Report on voting
20/1266/FDIS	20/1276/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

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

A list of all the parts in the IEC 60754 series, published under the general title *Test on gases evolved during combustion of materials from cables*, can be found on the IEC website.

The committee has decided that the contents of this publication 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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## INTRODUCTION

IEC 60754 consists of the following parts, under the general title *Test on gases evolved during combustion of materials from cables*:

- *Part 1: Determination of the halogen acid gas content*
- *Part 2: Determination of acidity (by pH measurement) and conductivity*

IEC 60754-1 was developed due to concerns expressed by cable users over the amount of acid gas which is evolved when some cable insulating, sheathing and other materials are burned, as this acid can cause extensive damage to electrical and electronic equipment not involved in the fire itself.

This standard provides a method for determining the amount of acid gases evolved by burning cable components so that limits can be agreed for cable specifications. As the test is not carried out on a complete cable test piece, for a hazard assessment the actual material volumes of the cable components should be taken into consideration.



## TEST ON GASES EVOLVED DURING COMBUSTION OF MATERIALS FROM CABLES –

### Part 1: Determination of the halogen acid gas content

#### 1 Scope

This part of IEC 60754 specifies the apparatus and procedure for the determination of the amount of halogen acid gas, other than hydrofluoric acid, evolved during the combustion of compounds based on halogenated polymers and compounds containing halogenated additives taken from electric or optical fibre cable constructions.

NOTE 1 This test method is not able to determine hydrofluoric acid. A suitable method may be found in IEC 60684-2.

NOTE 2 This test method may be used to test materials to be used in cable manufacture, but a declaration of cable performance should not be made based on such a test.

NOTE 3 The relevant cable standard should indicate which components of the cable should be tested.

NOTE 4 For the purposes of this standard, the term “electric cable” covers all insulated metallic conductor cables used for the conveyance of energy or signals.

The method specified in this standard is intended for the testing of individual components used in a cable construction. The use of this method will enable the verification of requirements which are stated in the appropriate cable specification for individual components of a cable construction.

NOTE 5 By agreement between the producer and purchaser, the methodology given in this standard may be used to test combinations of materials representing a cable construction, but a declaration of cable performance to this standard should not be made based on such a test. Information on such a method is given in Annex A.

For reasons of precision this method is not recommended for reporting values of halogen acid evolved less than 5 mg/g of the sample taken.

#### 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 385, *Laboratory glassware – Burettes*

ISO 1042, *Laboratory glassware – One-mark volumetric flasks*

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

#### 3 Terms and definitions

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

##### 3.1

##### halogen acid gas content

amount of halogen acid gas evolved, except hydrofluoric acid, expressed as milligrams of hydrochloric acid per gram of total test specimen

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