SVENSK STANDARD SS-EN IEC 60754-3

Fastställd	Utgåva	Sida	Ansvarig kommitté
2020-02-19	1	1 (1+24)	SEK TK 20

Kablar – Provning av gaser från förbränning av material i kablar – Del 3: Bestämning av låga halogenhalter genom förbränningsjonkromatografi

Test on gases evolved during combustion of materials from cables – Part 3: Measurement of low level of halogen content by ion chromatography

Som svensk standard gäller europastandarden EN IEC 60754-3:2019. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60754-3:2019.

Nationellt förord

Europastandarden EN IEC 60754-3:2019

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60754-3, First edition, 2018 - Test on gases evolved during combustion of materials from cables - Part 3: Measurement of low level of halogen content by ion chromatography**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 29.060.20; 13.220.40

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Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

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Stora delar av arbetet sker internationellt

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Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60754-3

August 2019

ICS 13.220.40; 29.060.20

English Version

Test on gases evolved during combustion of materials from cables - Part 3: Measurement of low level of halogen content by ion chromatography (IEC 60754-3:2018)

Essai sur les gaz émis lors de la combustion des matériaux prélevés sur câbles - Partie 3: Mesure d'une faible teneur en halogène par chromatographie ionique (IEC 60754-3:2018)

Prüfung der bei der Verbrennung der Werkstoffe von Kabeln und isolierten Leitungen entstehenden Gase - Teil 3: Messung eines niedrigen Halogengehalts durch Ionenchromatographie (IEC 60754-3:2018)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 60754-3:2019 E

European foreword

This document (EN IEC 60754-3:2019) consists of the text of IEC 60754-3:2018 prepared by IEC/TC 20 "Electric cables".

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2020-07-19
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2022-07-19

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 60754-3:2018 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60684-2	NOTE	Harmonized as EN 60684-2
IEC 60695-5-1	NOTE	Harmonized as EN 60695-5-1
IEC 60754-1	NOTE	Harmonized as EN 60754-1
IEC 60754-2	NOTE	Harmonized as EN 60754-2
IEC 62321-3-2	NOTE	Harmonized as EN 62321-3-2

Annex ZA
(normative)
Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
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	-
ISO 10304-1	-	Water quality -- Determination of dissolved anions by liquid chromatography of ions -- Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate	EN ISO 10304-1	-

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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TEST ON GASES EVOLVED DURING COMBUSTION OF MATERIALS FROM CABLES –

Part 3: Measurement of low level of halogen content by ion chromatography

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 60754-3 has been prepared by IEC technical committee 20: Electric cables.

This bilingual version (2018-11) corresponds to the monolingual English version, published in 2018-03.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
20/1784/FDIS	20/1791/RVD

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

The French version of this standard has not been voted upon.

This document 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 document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document 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*

– Part 3: *Measurement of low level of halogen content by ion chromatography*

NOTE Guidance on the corrosivity of fire effluent is given in IEC 60695-5-1.

IEC 60754-1 and IEC 60754-2 were 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 and such corrosive effluents can cause extensive damage to electrical and electronic equipment not involved in the fire itself.

IEC 60754-1 provides a method for determining the amount of acid gases evolved by burning cable components so that limits can be agreed for cable specifications.

IEC 60754-2 provides a method for determining the acidity (by pH measurement) and conductivity of an aqueous solution of gases evolved during the combustion of materials so that limits can be agreed for cable specifications

IEC 60754-1 is not able to determine hydrofluoric acid and, 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.

This document provides a method for measurement of low level of halogen content of the gases evolved by burning cable and has a high accuracy in the low range of concentration.

The ion chromatic system has an inherently high accuracy. However, the overall accuracy of the test method is limited by other factors (see Annex A for further information).

This part of IEC 60754 is linked with IEC 60754-2, using the same test procedure for obtaining the absorption solution.

TEST ON GASES EVOLVED DURING COMBUSTION OF MATERIALS FROM CABLES –

Part 3: Measurement of low level of halogen content by ion chromatography

1 Scope

This part of IEC 60754 specifies the apparatus and procedure for the measurement of the amount of halogens evolved during the combustion of materials taken from electric or optical fibre cable constructions.

The method specified in this document is intended for the measurement of the content of chlorine (Cl), bromine (Br), fluorine (F) and iodine (I), by using the analytical technique of ion chromatography for analysing an aqueous solution resulting from the gases evolved during the combustion.

The heating (combustion) procedure in this part of IEC 60754 is the same as in IEC 60754-2.

The method is intended for materials with an individual halogen content not exceeding 10 mg/g.

The method specified in this document 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 1 The relevant cable standard indicates which components of the cable are tested.

NOTE 2 This test method is sometimes used to test materials to be used in cable manufacture.

For reasons of precision, this method is not recommended for detecting values of halogens less than 0,1 mg/g of the sample taken.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1042, *Laboratory glassware – One-mark volumetric flasks*

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

ISO 10304-1, *Water quality – Determination of dissolved anions by liquid chromatography of ions – Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate*