SVENSK STANDARD SS-EN IEC 60480

Fastställd	Utgåva	Sida	Ansvarig kommitté
2020-01-28	2	1 (1+50)	SEK TK 10

Specifikation för återanvändning av svavelhexafluorid (SF_6) och blandningar där SF_6 ingår

Specifications for the re-use of sulphur hexafluoride (SF6) and its mixtures in electrical equipment

Som svensk standard gäller europastandarden EN IEC 60480:2019. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60480:2019.

Nationellt förord

Europastandarden EN IEC 60480:2019

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60480, Third edition, 2019 - Specifications for the re-use of sulphur hexafluoride (SF_6) and its mixtures in electrical equipment**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60480, utgåva 1, 2005, gäller ej fr o m 2022-05-09.

ICS 29.040.20; 29.130.01

Denna standard är fastställd av SEK Svensk Elstandard,
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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 60480

May 2019

ICS 29.130.01; 29.040.20

Supersedes EN 60480:2004

English Version

Specifications for the re-use of sulphur hexafluoride (SF_6) and its mixtures in electrical equipment (IEC 60480:2019)

Spécifications pour la réutilisation de l'hexafluorure de soufre (SF_6) et des mélanges contenant du SF_6 dans le matériel électrique
(IEC 60480:2019)

Spezifikationen für die Wiederverwendung von Schwefelhexafluorid (SF_6) und seinen Mischungen in elektrischen Betriebsmitteln
(IEC 60480:2019)

This European Standard was approved by CENELEC on 2019-05-09. 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.

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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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 60480:2019 E

SEK Svensk Elstandard

SS-EN IEC 60480, utg 2:2020

European foreword

The text of document 10/1075/FDIS, future edition 3 of IEC 60480, prepared by IEC/TC 10 "Fluids for electrotechnical applications" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60480:2019.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-02-09
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-05-09

This document supersedes EN 60480:2004.

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 60480:2019 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 60079-29-2	NOTE	Harmonized as EN 60079-29-2
IEC 62271-203	NOTE	Harmonized as EN 62271-203
IEC 60376	NOTE	Harmonized as EN IEC 60376
IEC 60068-2-17	NOTE	Harmonized as EN 60068-2-17

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 Where 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
IEC 60050-192	-	International electrotechnical vocabulary - Part 192: Dependability	-	-
IEC 60050-212	-	International Electrotechnical Vocabulary - Part 212: Electrical insulating solids, liquids and gases	-	-
IEC 60050-441	-	International Electrotechnical Vocabulary. Switchgear, controlgear and fuses	-	-
IEC 60050-826	-	International Electrotechnical Vocabulary - Part 826: Electrical installations	-	-
IEC 62271-4	2013	High-voltage switchgear and controlgear - Part 4: Handling procedures for sulphur hexafluoride (SF_6) and its mixtures	EN 62271-4	2013

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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SPECIFICATIONS FOR THE RE-USE OF SULPHUR HEXAFLUORIDE (SF_6) AND ITS MIXTURES IN ELECTRICAL EQUIPMENT

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

International Standard IEC 60480 has been prepared by IEC technical committee 10: Fluids for electrotechnical applications.

This third edition cancels and replaces the second edition, published in 2004. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- specifications for the re-use of SF_6 have been confirmed;
- specifications for the re-use of SF_6 mixtures, namely SF_6/N_2 and SF_6/CF_4 mixtures are included;
- as a result of a new repartition of annexes in IEC 60376, IEC 60480 and IEC 62271-4, this new edition now contains the following five annexes:
  - Annex A: Description of methods of analysis (on-site and laboratory);
  - Annex B: By–products of SF_6 and its mixtures;

– Annex C: Procedure for evaluating the potential effects on health from by-products of SF_6 and its mixtures;

– Annex D: Reclaiming recommendations.

– Annex E: Cryogenic reclaiming of SF_6;

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

FDIS	Report on voting
10/1075/FDIS	10/1080/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.

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

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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

SPECIFICATIONS FOR THE RE-USE OF SULPHUR HEXAFLUORIDE (SF_6) AND ITS MIXTURES IN ELECTRICAL EQUIPMENT

1 Scope

This document provides criteria for the re-use of sulphur hexafluoride (SF_6) and its mixtures after recovery and reclaiming from electrical equipment (e.g. for maintenance, at the end-of-life).

Sulphur hexafluoride (SF_6), nitrogen (N_2) and carbon tetrafluoride (CF_4), are gases commonly used for electrical equipment. Taking into account environmental concerns, particular attention is paid to re-use criteria for SF_6 and its mixtures with N_2 and CF_4 for its use in electrical equipment. Procedures for recovering and reclaiming used SF_6 and its mixtures are outside the scope of this document and are described in IEC 62271-4.

This document provides several annexes on the description of the different methods of analysis, on by-products, on the procedure for evaluating the potential health effects from by-products, on cryogenic reclaiming of SF_6, and on reclaiming recommendations.

Storage, transportation and disposal of SF_6 and its mixtures are outside the scope of this document and are covered by IEC 62271-4. Procedures to determine SF_6 leakages are described in IEC 60068-2-17 [4][1].

For the purposes of this document, the complementary gases used in SF_6 mixtures will be limited to N_2 or CF_4.

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.

IEC 60050-192, *International Electrotechnical Vocabulary – Part 192: Dependability* (available at http://www.electropedia.org)

IEC 60050-212, *International Electrotechnical Vocabulary – Part 212: Electrical insulating solids, liquids and gases* (available at http://www.electropedia.org)

IEC 60050-441, *International Electrotechnical Vocabulary – Part 441: Switchgear, controlgear and fuses* (available at http://www.electropedia.org)

IEC 60050-826, *International Electrotechnical Vocabulary – Part 826: Electrical installations* (available at http://www.electropedia.org)

IEC 62271-4:2013, *High-voltage switchgear and controlgear – Part 4: Handling procedures for sulphur hexafluoride (SF_6) and its mixtures*

[1] Numbers in square brackets refer to the bibliography.