

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Specification of technical grade sulphur hexafluoride (SF₆) and complementary gases to be used in its mixtures for use in electrical equipment

Spécification de la qualité technique de l'hexafluorure de soufre (SF₆) et des gaz complémentaires à employer dans les mélanges de SF₆ pour utilisation dans les matériels électriques



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SPECIFICATION OF TECHNICAL GRADE SULPHUR
HEXAFLUORIDE (SF₆) AND COMPLEMENTARY GASES
TO BE USED IN ITS MIXTURES FOR USE IN ELECTRICAL EQUIPMENT**

FOREWORD

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International Standard IEC 60376 has been prepared by IEC technical committee 10: Fluids for electrotechnical applications.

This bilingual version (2018-10) corresponds to the monolingual English version, published in 2018-05.

This third edition cancels and replaces the second edition published in 2005. This edition constitutes a technical revision.

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

- a) the requirements for the use of SF₆ in electrical equipment have been confirmed;
- b) a specification for complementary gases to be used in SF₆ mixtures with N₂ and CF₄ has been included;

- c) the introduction and scope have been merged;
- d) a new repartition of the annexes of IEC 60376, IEC 60480 and IEC 62271-4 has been included.

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

FDIS	Report on voting
10/1056/FDIS	10/1060/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.

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- withdrawn,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.

SPECIFICATION OF TECHNICAL GRADE SULPHUR HEXAFLUORIDE (SF₆) AND COMPLEMENTARY GASES TO BE USED IN ITS MIXTURES FOR USE IN ELECTRICAL EQUIPMENT

1 Scope

This document defines the quality for technical grade sulphur hexafluoride (SF₆) and complementary gases such as nitrogen (N₂) and carbon tetra-fluoride (CF₄), for use in electrical equipment. Detection techniques, covering both laboratory and in-situ portable instrumentation, applicable to the analysis of SF₆, N₂ and CF₄ gases prior to the introduction of these gases into the electrical equipment are also described in this document.

This document provides some information on sulphur hexafluoride in Annex A and on the environmental effects of SF₆ in Annex B.

Information about SF₆ by-products and the procedure for evaluating the potential effects of SF₆ by-products on human health are covered by IEC 60480, their handling and disposal being carried out according to international and local regulations with regard to the impact on the environment. Handling of SF₆ and its mixtures is covered by IEC 62271-4.

Procedures to determine SF₆ leakages are described in IEC 60058-2-17.

For the purposes of this document, the complementary gases used in SF₆ mixtures will be limited to N₂ or CF₄.

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 60050-212, *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 60480, *Guidelines for the checking and treatment of sulphur hexafluoride (SF₆) taken from electrical equipment and specification for its re-use*

IEC 62271-4, *High-voltage switchgear and controlgear – Part 4: Handling procedures for sulphur hexafluoride (SF₆) and its mixtures*