

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Fluids for electrotechnical application – Specification of gases alternative to SF<sub>6</sub> to be used in electrical power equipment**

**Fluides pour applications électrotechniques – Spécifications des gaz alternatifs au SF<sub>6</sub> destinés à être utilisés dans les matériels électriques**



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## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	7
3 Terms, definitions and abbreviated terms .....	8
3.1 Terms and definitions.....	8
3.2 Abbreviated terms.....	9
4 Requirements for gases.....	9
4.1 General.....	10
4.2 Compressed air .....	10
4.3 Technical grade synthetic air .....	10
4.4 Technical grade natural-origin gases .....	10
4.5 Technical grade C <sub>5</sub> F <sub>10</sub> O (C5-FK).....	11
4.6 Technical grade C <sub>4</sub> F <sub>7</sub> N (C4-FN).....	12
5 Mixing ratio and tolerances.....	12
6 Handling, storage and transportation .....	13
6.1 Gas handling procedures .....	13
6.2 Storage and transportation.....	13
7 Environmental impact .....	13
Annex A (informative) Environmental, health, and safety effects of gases .....	14
A.1 General.....	14
A.2 Physical hazards.....	14
A.3 Hazard to human health.....	14
A.4 Environmental hazard.....	15
A.5 Ozone depletion.....	16
A.6 Global warming/climate change (greenhouse effect) .....	16
A.7 Reducing the environmental impact of the use of gases in electrical power equipment.....	17
Annex B (informative) On-site detection techniques .....	18
Annex C (informative) Mole fraction (% mol) versus volume fraction (% vol) .....	22
C.1 General.....	22
C.2 Definitions of the fractions and compressibility factor .....	22
C.2.1 Mole fraction ( $x$ ).....	22
C.2.2 Volume fraction ( $\Phi_i$ ).....	22
C.2.3 Mass fraction ( $w$ ).....	23
C.2.4 Compressibility factor ( $Z$ ).....	23
C.2.5 Names and symbols .....	24
C.3 Examples % mol vs % vol for C4-FN / O <sub>2</sub> / CO <sub>2</sub> mixtures .....	24
C.3.1 General .....	24
C.3.2 Variation with pressure .....	25
C.3.3 Variation with temperature .....	25
Bibliography.....	27

Figure C.1 – Shift between mole and volume fractions with pressure for two mixtures containing 5 % mol and 3,5 % mol C4-FN, 13 % mol O<sub>2</sub> and the rest in CO<sub>2</sub> (20 °C)..... 25

Figure C.2 – Shift between mole and volume fractions with temperature for two mixtures containing 5 % mol and 3,5 % mol C4-FN, 13 % mol O <sub>2</sub> and the rest in CO <sub>2</sub> (101,3 kPa).....	26
Table 1 – Requirements for compressed air for electrical power equipment .....	10
Table 2 – Requirements for technical grade synthetic air .....	10
Table 3 – Requirements for technical grade nitrogen .....	11
Table 4 – Requirements for technical grade oxygen .....	11
Table 5 – Requirements for technical grade carbon dioxide .....	11
Table 6 – Requirements for technical grade C5-FK .....	12
Table 7 – Requirements for technical grade C4-FN .....	12
Table A.1 – Global warming potential (GWP) of components of the gases according to IPCC AR6 [12] or [13] .....	17
Table B.1 – Detection techniques for the analysis of synthetic air .....	18
Table B.2 – Detection techniques for the analysis of compressed air .....	19
Table B.3 – Detection techniques for the analysis of natural-origin gases mixtures .....	20
Table B.4 – Detection techniques for the analysis of C5-FK mixtures .....	20
Table B.5 – Detection techniques for the analysis of C4-FN mixtures .....	21

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## FLUIDS FOR ELECTROTECHNICAL APPLICATION – SPECIFICATION OF GASES ALTERNATIVE TO SF<sub>6</sub> TO BE USED IN ELECTRICAL POWER EQUIPMENT

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

Draft	Report on voting
10/1219/FDIS	10/1257/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

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## INTRODUCTION

Considering the limited information for some of the data which appear in informative Annex A, the reader should be aware that the information related with possible gases alternative to SF<sub>6</sub> are still a matter of study.

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# FLUIDS FOR ELECTROTECHNICAL APPLICATION – SPECIFICATION OF GASES ALTERNATIVE TO SF<sub>6</sub> TO BE USED IN ELECTRICAL POWER EQUIPMENT

## 1 Scope

This document specifies the quality of gases alternative to SF<sub>6</sub> (subsequently referred to as gases) for use in electrical power equipment.

Detection techniques, applicable to the analysis of gases prior to their introduction into the electrical power equipment, are also described in this document.

Information about gases by-products and the procedure for evaluating the potential effects of gases and its by-products on human health are covered by IEC 63359<sup>1</sup>[1] and IEC 62271-4.

It is the responsibility of the gas manufacturer to make available sufficient information for safe handling of gases and a risk assessment.

For gases not mentioned in this document, the electrical power equipment manufacturer and/or gas manufacturer provides the information indicated in this document. It is the intention of this document to include such gases in a next edition or in amendments to this edition. This document provides information to prepare risk assessment associated with the use of gases. It is the responsibility of the user of this document to establish appropriate health and safety practices and determine the applicability of regulatory limitations prior to use.

NOTE 1 Throughout this document, the term "pressure" stands for "absolute pressure".

NOTE 2 If not otherwise specified in this document, concentration values (e.g. %, ppmv, µl/l) of gas components or contaminants are given in volume fraction at 20 °C and 100 kPa. More information on temperature and pressure dependance of mole fraction and volume fraction is given in Annex C.

NOTE 3 If gases for electrical power equipment are regulated, their designation and regulation origin can be found in the IEC 62474 database [2] (available at <https://std.iec.ch/iec62474> [viewed 2024-02-19]).

NOTE 4 Handling of gases is covered by IEC 62271-4:2022.

NOTE 5 Additional information is needed from gas manufacturer and/or electrical power equipment manufacturer to perform a full risk assessment.

## 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 (IEV) – Part 212: Electrical insulating solids, liquids and gases* (available at <http://www.electropedia.org>)

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

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<sup>1</sup> Numbers in square brackets refer to the Bibliography.