
Irish Standard
I.S. EN ISO 16664:2017

# Gas analysis - Handling of calibration gases and gas mixtures - Guidelines (ISO 16664:2017)

**I.S. EN ISO 16664:2017**

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

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|---|---|---|
| NSAI | T +353 1 807 3800 | Sales: |
| 1 Swift Square, | F +353 1 807 3838 | T +353 1 857 6730 |
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## National Foreword

I.S. EN ISO 16664:2017 is the adopted Irish version of the European Document EN ISO 16664:2017, Gas analysis - Handling of calibration gases and gas mixtures - Guidelines (ISO 16664:2017)

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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*In line with international standards practice the decimal point is shown as a comma (,) throughout this document.*

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN ISO 16664

June 2017

ICS 71.040.40

Supersedes EN ISO 16664:2008

English Version

# Gas analysis - Handling of calibration gases and gas mixtures - Guidelines (ISO 16664:2017)

Analyse des gaz - Mise en oeuvre des gaz et des mélanges de gaz pour étalonnage - Lignes directrices (ISO 16664:2017)

Gasanalyse - Handhabung von Kalibriergasen und Gasgemischen - Richtlinien (ISO 16664:2017)

This European Standard was approved by CEN on 19 September 2016.

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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 CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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



Ref. No. EN ISO 16664:2017 E

# Contents

Page

# European foreword

This document (EN ISO 16664:2017) has been prepared by Technical Committee ISO/TC 158 "Analysis of gases".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2017, and conflicting national standards shall be withdrawn at the latest by December 2017.

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

This document supersedes EN ISO 16664:2008.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

**Endorsement notice**

The text of ISO 16664:2017 has been approved by CEN as EN ISO 16664:2017 without any modification.

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I.S. EN ISO 16664:2017

INTERNATIONAL STANDARD

**ISO 16664**

Second edition
2017-05

# Gas analysis — Handling of calibration gases and gas mixtures — Guidelines

*Analyse des gaz — Mise en oeuvre des gaz et des mélanges de gaz pour étalonnage — Lignes directrices*

Reference number
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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

 

# Contents

Page

# Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html

This document was prepared by Technical Committee ISO/TC 158, *Analysis of gases*.

This second edition cancels and replaces the first edition (ISO 16664:2004), which has been technically revised. The major changes are the following:

— Figures 1 and 5 have been revised to more clearly depict the arrangements;

— several references and terminological entries have been updated.

# Introduction

This document uses the terms “calibration gas” for both gas mixtures and pure gases as the limiting case of gas mixtures.

The quality of calibration gases in cylinders as certified by producers is defined by

a) the correct analyte content;

b) a known uncertainty which is appropriate for its intended use;

c) the stability;

d) the homogeneity.

During its utilization period, the quality of calibration gases is influenced by

— storage conditions at the manufacturer’s and user’s sites;

— transport conditions;

— modes of calibration gas withdrawal and transfer;

— the transfer system employed.

# Gas analysis — Handling of calibration gases and gas mixtures — Guidelines

**SAFETY PRECAUTIONS — National and international safety regulations concerning storage, use and transportation of pure gases and gas mixtures are to be followed in addition to this document.**

## 1 Scope

This document describes factors that may influence the composition of pure gases and homogeneous gas mixtures used for calibration purposes. This document only applies to gases or gas mixtures that are within the "utilization period". It provides the following guidelines for the handling and use of calibration gas mixtures:

— storage of calibration gas cylinders;

— calibration gas withdrawal from cylinders;

— transfer of calibration gas from cylinders to the point of calibration.

It also outlines a method of assessing the stability of a gas mixture, taking into account the gas composition uncertainty given on the certificate and the user's measurement uncertainty.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

**3.1**
**calibration gas**
pure gas or gas mixture used for calibration

**3.2**
**calibration gas mixture**
gas mixture of known *stability* (3.9) and *homogeneity* (3.4) whose composition is well established for use in the calibration or verification of a measuring instrument or for the validation of a measurement

Note 1 to entry: Calibration gas mixtures are measurement standards (Annex A) as defined in ISO/IEC Guide 99:2007.

[SOURCE: ISO 7504:2015, 5.1]

**3.3**
**component**
chemical entity at a defined physical state present in a material or in a mixture

[SOURCE: ISO 7504:2015, 3.3]