INTERNATIONAL STANDARD

ISO 19230

First edition
2020-11

Gas analysis — Sampling guidelines

Analyse des gaz — Lignes directrices pour le prélèvement des échantillons

Reference number
ISO 19230:2020(E)

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Published in Switzerland

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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

For an explanation of 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 www.iso.org/iso/foreword.html.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The determination of gas composition, impurity concentration and physical properties depend, to a large extent, on sampling technique. The use of correct sampling techniques is an important safety and quality critical step in gas analysis. The design, construction and selection of the sampling equipment to avoid hazardous situations and sampling errors are important and directly influence the results obtained. Any slight carelessness, inexactitude or mistake will seriously influence safety and the results obtained.

Gaseous products are stored and transported in pressure receptacles in the form of compressed or liquefied gas or through gas pipelines. The sampling methods used differ depending upon the package, composition and delivery methods.

This document provides technical guidelines for the sampling of gases in pressure receptacles and pipelines for analytical purposes.

Gas analysis — Sampling guidelines

WARNING — The use of this document can involve a number of hazards. This document does not specify all the safety issues associated with its use. Users of this document are responsible for establishing measures to ensure safety while gas sampling.

1 Scope

This document specifies the general provisions and gives the basic definitions of terms relating to sampling for gas analysis, including sampling devices, sampling methods, sampling technical considerations, and sampling safety.

This document applies to both direct and indirect sampling of gas in pressure receptacles and pipelines, including pure gases and gas mixtures. Compressed and liquefied gases are both considered.

This document applies to the sampling of processed gases and does not involve gas treatment processes.

The sampling procedures specified are not intended for the sampling of special products which are the subject of other International Standards, such as liquefied petroleum gases (see ISO 4257) and gaseous natural gases (see ISO 10715).

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 3165, *Sampling of chemical products for industrial use — Safety in sampling*

ISO 16664, *Gas analysis — Handling of calibration gases and gas mixture — Guidelines*

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:

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

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

3.1
gas
materials which are present completely in gaseous form at a temperature of 20 °C under the absolute pressure of 0,101 3 MPa

Note 1 to entry: The materials here include single mediums and mixtures.

3.2
compressed gas
gas (3.1) which, when packaged under pressure for transport, is entirely gaseous at all temperatures above −50 °C

Note 1 to entry: This category includes all gases with a critical temperature less than or equal to −50 °C.

[SOURCE: ISO 10286:2015, 705, modified — Modified to include all temperatures above −50 °C.]