

norm

NEN-EN-ISO 6974-1

Natural gas - Determination of composition and associated uncertainty by gas chromatography - Part 1: General guidelines and calculation of composition (ISO/DIS 6974-1:2010, IDT)

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prEN ISO 6974-1

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English Version

Natural gas - Determination of composition and associated uncertainty by gas chromatography - Part 1: General guidelines and calculation of composition (ISO/DIS 6974-1:2010)

Gaz naturel - Détermination de la composition avec une incertitude définie par chromatographie en phase gazeuse - Partie 1: Lignes directrices générales et calculs de la composition (ISO/DIS 6974-1:2010)

Erdgas - Bestimmung der Zusammensetzung und der zugehörigen Unsicherheit durch Gaschromatographie - Teil 1: Allgemeine Leitlinien und Berechnung der Zusammensetzung (ISO/DIS 6974-1:2010)

This draft European Standard is submitted to CEN members for parallel enquiry. It has been drawn up by the Technical Committee CEN/SS N21.

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Foreword

This document (prEN ISO 6974-1:2010) has been prepared by Technical Committee ISO/TC 193 "Natural gas".

This document is currently submitted to the parallel Enquiry.

This document will supersede EN ISO 6974-1:2001.

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The text of ISO/DIS 6974-1:2010 has been approved by CEN as a prEN ISO 6974-1:2010 without any modification.

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Natural gas — Determination of composition and associated uncertainty by gas chromatography —

Part 1:

General guidelines and calculation of composition

Gaz naturel — Détermination de la composition avec une incertitude définie par chromatographie en phase gazeuse —

Partie 1: Lignes directrices générales et calculs de la composition

[Revision of first edition (ISO 6974-1:2000)]

ICS 75.060

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO-lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five-month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 6974-1 was prepared by Technical Committee ISO/TC 193, *Natural gas*, Subcommittee SC 1.

This second edition jointly with the second edition of ISO 6974 Part 2 cancel and replace both ISO 6974-1:2000 and ISO 6974-2:2000.

ISO 6974 consists of the following Parts, under the general title *Natural gas — Determination of composition with defined uncertainty by gas chromatography*:

- *Part 1: General guidelines and calculation of composition*
- *Part 2: Uncertainty calculations*
- *Part 3: Determination of hydrogen, helium, oxygen, nitrogen, carbon dioxide and hydrocarbons up to C₈ using two packed columns*
- *Part 4: Determination of nitrogen, carbon dioxide and C₁ to C₅ and C₆₊ hydrocarbons for a laboratory and on-line measuring system using two columns*
- *Part 5: Determination of nitrogen, carbon dioxide and C₁ to C₅ and C₆₊ hydrocarbons for a laboratory and on-line process application using three columns*
- *Part 6: Determination of hydrogen, helium, oxygen, nitrogen, carbon dioxide and hydrocarbons up to C₈ using three capillary columns*

Annexes A, C, E, G and H of this Part of this Standard are for information only. Annexes B, D and F are normative Annexes.

Introduction

ISO 6974 (all Parts) describes methods of analysis of natural gas, and methods to calculate the component mole fractions and uncertainties. ISO 6974 (all Parts) is designed for the measurement of H₂, He, O₂, N₂, CO₂ and hydrocarbons as either individual components or as a group, for example a total figure for hydrocarbons above C₅ defined as C₆₊. This approach is suitable for a range of end applications, for example calibration of gas mixtures or to provide natural gas composition and uncertainty data to be used in the calculation of calorific value and other additive physical properties of the gas. Details of these end applications are provided in Part 3 and subsequent Parts of ISO 6974.

This Part of ISO 6974 gives general guidelines for the gas chromatographic analysis of natural gas and methods of data processing to determine compositions of component mole fractions. This second edition jointly with the second edition of ISO 6974 Part 2 cancel and replace both ISO 6974-1:2000 and ISO 6974-2:2000

Part 2 of ISO 6974 describes the steps required to calculate the uncertainty in each component mole fraction.

Part 3 and subsequent Parts of ISO 6974 describe different gas chromatographic methods. These methods cover both daily practice in the laboratory and on-line field applications. Informative Annex A of this Part gives a comparison of the characteristics of the analytical methods described in Part 3 and subsequent Parts of ISO 6974.

Compliance with this Standard requires:

- If only component mole fractions are required: This Part with a method of analysis that meets the requirements of, and is operated in accordance with this Part. This could be either one of Part 3 or subsequent Parts of this Standard or another chromatographic method of choice. Any chromatographic method not forming Part of this Standard shall be documented in the same manner and to the same detail as used to specify the methods in Part 3 and subsequent Parts of this Standard.
- If component mole fractions and associated uncertainties are required: This Part with Part 2 and a method of analysis that meets the requirements of, and is operated in accordance with this Part (as described in the above bullet point).

This Part of ISO 6974 describes all the essential steps for setting up an analysis including outlining the structure of the analysis, defining the working ranges and establishing the analytical procedure. When the working ranges of the components have been defined, an evaluation is carried out to determine whether components are to be considered as:

- Main components or groups of components to be analysed using direct measurement (directly measured components);
- Components or groups of components to be analysed using indirect measurement, by reference to a different reference component in the calibration gas mixture (indirectly measured components);
- Components that are not measured and whose mole fraction can be assumed to be constant (components not measured).

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