SLOVENSKI STANDARD
SIST EN ISO 6974-1:2001

01-december-2001

Zemeljski plin - Določ evanje sestave z določ eno negotovostjo s plinsko kromatografijo - 1. del: Navodila za specialne analize (ISO 6974-1:2000)

Natural gas - Determination of composition with defined uncertainty by gas chromatography - Part 1: Guidelines for tailored analysis (ISO 6974-1:2000)

Erdgas - Bestimmung der Zusammensetzung mit definierter Unsicherheit durch Gaschromatographie - Teil: Richtlinien für die maßgeschneiderte Analyse (ISO 6974-1:2000)

Gaz naturel - Détermination de la composition avec une incertitude définie par chromatographie en phase gazeuse - Partie 1: Lignes directrices pour l'analyse spéciale (ISO 6974-1:2000)

Ta slovenski standard je istoveten z: **EN ISO 6974-1:2001**

ICS:

75.060	Zemeljski plin	Natural gas

SIST EN ISO 6974-1:2001 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 6974-1

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English version

Natural gas - Determination of composition with defined uncertainty by gas chromatography - Part 1: Guidelines for tailored analysis (ISO 6974-1:2000)

Gaz naturel - Détermination de la composition avec une incertitude définie par chromatographie en phase gazeuse - Partie 1: Lignes directrices pour l'analyse spéciale (ISO 6974-1:2000)

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This European Standard was approved by CEN on 22 June 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

The text of the International Standard from Technical Committee ISO/TC 193 "Natural gas" of the International Organization for Standardization (ISO) has been taken over as a European Standard by CMC.

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 February 2002, and conflicting national standards shall be withdrawn at the latest by February 2002.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 6974-1:2000 has been approved by CEN as a European Standard without any modifications.

NOTE Normative references to International Standards are listed in annex ZA (normative).

Annex ZA
(normative)

Normative references to international publications with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE Where an International Publication has been modified by common modifications, indicated by (mod.), the relevant EN/HD applies.

Publication	Year	Title	EN	Year
ISO 6974-3	2000	Natural gas - Determination of composition with defined uncertainty by gas chromatography - Part 3: Determination of hydrogen, helium, oxygen, nitrogen, carbon dioxide and hydrocarbons up to C8 using two packed columns	EN ISO 6974-3	2001
ISO 6974-4	2000	Natural gas - Determination of composition with defined uncertainty by gas chromatography - 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	EN ISO 6974-4	2001
ISO 6974-5	2000	Natural gas - Determination of composition with defined uncertainty by gas chromatography - 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	EN ISO 6974-5	2001
ISO 10715	1997	Natural gas - Sampling guidelines	EN ISO 10715	2000

INTERNATIONAL STANDARD

ISO 6974-1

First edition
2000-04-01

Natural gas — Determination of composition with defined uncertainty by gas chromatography —

Part 1: Guidelines for tailored analysis

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

Partie 1: Lignes directrices pour l'analyse spéciale

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

Attention is drawn to the possibility that some of the elements of this part of ISO 6974 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 6974-1 was prepared by Technical Committee ISO/TC 193, *Natural gas*, Subcommittee SC 1, *Analysis of natural gas*.

This part as well as the other five parts of ISO 6974 cancel and replace ISO 6974:1984 which specified only one method.

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

— *Part 1: Guidelines for tailored analysis*

— *Part 2: Measuring-system characteristics and statistics for data treatment*

— *Part 3: Determination of hydrogen, helium, oxygen, nitrogen, carbon dioxide and hydrocarbons up to C_8 using two packed columns*

— *Part 4: Determination of nitrogen, carbon dioxide and C_1 to C_5 and C_{6+} hydrocarbons for a laboratory and on-line measuring system using two columns*

— *Part 5: Determination of nitrogen, carbon dioxide and C_1 to C_5 and C_{6+} 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 C_8 using three capillary columns*

Annexes A and B of this part of ISO 6974 are for information only.

Introduction

This part of ISO 6974 gives guidelines for the "tailored" analysis of natural gas with the aim of determining the mole fractions of the principal components.

ISO 6974 (all parts) describes methods of analysis of natural gas with definable levels of uncertainty. The approach is suitable for the calculation of calorific value and other additive physical properties of the gas, again with a definable uncertainty.

Part 2 of ISO 6974 describes the determination of the measuring system characteristics and the statistical approach to data handling and error calculation with the aim of defining the uncertainties in the component mole fractions.

Part 3 and subsequent parts of ISO 6974 describe different possible methodologies for tailored analyses, which can only be applied in conjunction with parts 1 and 2 of ISO 6974.

Parts 1 and 2 represent the body of ISO 6974. The method chosen from Part 3 and subsequent parts or from any other source requires compliance with parts 1 and 2 of ISO 6974.

Informative annex A gives a comparison of the characteristics of typical analytical methods as described in part 3 and subsequent parts of ISO 6974.

ISO 6974 (all parts) is designed for the measurement of H_2, He, O_2, N_2, CO_2, individual hydrocarbons and/or a total figure for hydrocarbons for example above C_5 defined as C_{6+}. It is not applicable to other minor components where their contribution to physical properties is not significant or can be regarded as constant. Among these are potentially natural components such as Ar, H_2O and sulfur compounds, and components arising from gas treatment such as methanol, glycols and amines.

The described method allows air contamination in the sample to be recognized and measured in the case of spot sampling and laboratory analysis, but not necessarily for on-line analysis.

Although "tailored" analysis itself is relatively simple, it can produce an analysis with high accuracy, provided that elaborate preparations are carried out. These include outlining the structure of the analysis, defining the working ranges and establishing the analytical procedure. However, in practice, only a limited number of steps are necessary for setting up the method to meet the requirements for specific application. The amount of work and calculations necessary will then be relatively restricted.

This part of ISO 6974 describes all the essential steps for setting up a "tailored" analysis.

Assuming that the analytical results follow the normal distribution, control charts give an indication as to whether the measuring system and the established method is working satisfactorily. For this reason the use of control charts is described in informative annex B of this part of ISO 6974.

ISO 6974 (all parts) can be used in daily practice in a laboratory and for on-line field applications and covers the following options or alternatives.

— Straight-line or polynomial calibration plots.

— Single-point or multi-level calibration.

— Recombination of components by backflushing to vent, recombination of components by backflushing to measure, or forward elution of all components.

— Calibration one-to-one, or by relative response factors to a reference component.