

Natural gas - Determination of sulfur compounds using gas chromatography

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 19739:2006 sisaldab Euroopa standardi EN ISO 19739:2005 ingliskeelset teksti. Käesolev dokument on jõustatud 25.01.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 19739:2006 consists of the English text of the European standard EN ISO 19739:2005. This document is endorsed on 25.01.2006 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.
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Käsitlusala: This International Standard specifies the determination of hydrogen sulfide, carbonyl sulfide, C1 to C4 thiols, sulfides and tetrahydrothiophene (THT) using gas chromatography (GC).	Scope: This International Standard specifies the determination of hydrogen sulfide, carbonyl sulfide, C1 to C4 thiols, sulfides and tetrahydrothiophene (THT) using gas chromatography (GC).
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ICS 75.060

Võtmesõnad:

ICS 75.060

English Version

Natural gas - Determination of sulfur compounds using gas chromatography (ISO 19739:2004)

Gaz naturel - Détermination des composés soufrés par chromatographie en phase gazeuse (ISO 19739:2004)

Erdgas - Bestimmung von Schwefelverbindungen mittels Gaschromatographie (ISO 19739:2004)

This European Standard was approved by CEN on 3 November 2005.

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Foreword

The text of ISO 19739:2004 has been prepared by Technical Committee ISO/TC 193 "Natural gas" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 19739:2005 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of an identical text or by endorsement, at the latest by May 2006, and conflicting national standards shall be withdrawn at the latest by May 2006.

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

Endorsement notice

The text of ISO 19739:2004 has been approved by CEN as EN ISO 19739:2005 without any modifications.

INTERNATIONAL STANDARD

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2004-05-01

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2005-11-15

Natural gas — Determination of sulfur compounds using gas chromatography

*Gaz naturel — Détermination des composés soufrés par
chromatographie en phase gazeuse*



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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 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.

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.

ISO 19739 was prepared by Technical Committee ISO/TC 193, *Natural gas*, Subcommittee SC 1, *Analysis of natural gas*.

This first edition of ISO 19739 cancels and replaces ISO 6326-2:1981 and ISO 6326-4:1994, of which it constitutes a technical revision.

This corrected version of ISO 19739:2004 incorporates the following corrections:

- page 2, 3.2: a prime has been added to the second R in the formula and the description in parenthesis;
- page 2, 3.3: a prime has been added to the second R in the formula and the description in parenthesis;
- page 7, 9 b): the name of the molecule has been corrected to 2-methylpropane-2-thiol;
- pages 20, 31, 43 and 44: the footnotes have been corrected to read "...this International Standard...";
- page 22, D.3.4.2: the temperature has been changed to 293 K;
- page 43: the name of the molecule has been corrected to 2-methylpropane-2-thiol;
- other minor editorial rectifications.

Introduction

Sulfur compounds may occur naturally in natural gas and remain as traces after treatment, or they may have been injected deliberately to allow subsequent olfactory detection for safety reasons.

The standardization of several methods for the determination of sulfur compounds in natural gas is necessary in view of the diversity of these compounds (hydrogen sulfide, carbonyl sulfide, tetrahydrothiophene, etc.) and the requirements of the determinations (e.g. required uncertainty, measurement at the drilling head, clean-up plant or in transmission pipes).

In order to enable its user to choose the most appropriate method for his/her particular needs and perform the measurements under the best conditions, this International Standard gives the requirements needed to perform a sulfur analysis.

Natural gas — Determination of sulfur compounds using gas chromatography

WARNING — Some sulfur compounds can constitute a serious health hazard.

1 Scope

This International Standard specifies the determination of hydrogen sulfide, carbonyl sulfide, C₁ to C₄ thiols, sulfides and tetrahydrothiophene (THT) using gas chromatography (GC). Depending on the method chosen from those given in the annexes, the application ranges for the determination of sulfur compounds can vary, but whichever of the methods is used, the requirements of this International Standard apply.

2 Normative references

The following referenced documents are indispensable for the application 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 5725-2:1994, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

ISO 6141, *Gas analysis — Requirements for certificates for calibration gases and gas mixtures*

ISO 6143, *Gas analysis — Comparison methods for determining and checking the composition of calibration gas mixtures*

ISO 6145-10, *Gas analysis — Preparation of calibration gas mixtures using dynamic volumetric methods — Part 10: Permeation method*

ISO 10715:1997, *Natural gas — Sampling guidelines*

ISO 14532:2001, *Natural gas — Vocabulary*

3 Terms and definitions

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

3.1

alkane thiol

alkyl mercaptan

organic sulfur compound with the general formula R-SH (where R is the alkyl group), either naturally present or added as an odorant to natural gas

[ISO 14532:2001, definition 2.5.3.3.1]

EXAMPLE Methanethiol (MeSH), ethanethiol (EtSH), 2-methylpropane-2-thiol (tert-butylmercaptan TBM).