

Analysis of natural gas - Biomethane - Determination
of terpenes' content by micro gas chromatography
(ISO 2614:2023)

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NATIONAL FOREWORD

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EUROPEAN STANDARD

EN ISO 2614

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2023

ICS

English Version

Analysis of natural gas - Biomethane - Determination of terpenes' content by micro gas chromatography (ISO 2614:2023)

Analyse du gaz naturel - Biométhane - Détermination de la teneur en terpènes par micro-chromatographie en phase gazeuse (ISO 2614:2023)

Analyse von Erdgas - Analyse von Biomethan - Bestimmung des Terpengehaltes durch Mikrogaschromatographie (ISO 2614:2023)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 2614:2023) has been prepared by Technical Committee ISO/TC 193 "Natural gas" in collaboration with Technical Committee CEN/TC 408 "Natural gas and biomethane for use in transport and biomethane for injection in the natural gas grid" the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by March 2024, and conflicting national standards shall be withdrawn at the latest by March 2024.

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 has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association.

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Endorsement notice

The text of ISO 2614:2023 has been approved by CEN as EN ISO 2614:2023 without any modification.

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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 document 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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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 193, *Natural gas*, Subcommittee SC 1, *Analysis of natural gas*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 408, *Natural gas and biomethane for use in transport and biomethane for injection in the natural gas grid*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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Introduction

Terpenes can occur naturally in biogas and remain as trace components after treatment in the biomethane produced. Terpenes are odoriferous compounds that have the potential to mask the smell of the odorant added to the biomethane before injection into the natural gas grid. For safety reasons it is necessary to monitor these impurities.

This document describes a method to perform the analysis of five terpenes in biomethane. The method includes both on-line and offline measurement techniques based on chromatography and can be of interest to fuel specifications for biomethane.

This document contributes to the standardization of the determination of terpenes in biomethane. The document relates to good housekeeping in supply of biomethane into the natural gas grid.

Analysis of natural gas — Biomethane — Determination of terpenes' content by micro gas chromatography

1 Scope

This document specifies a micro gas chromatography method for the on-line or offline determination of the content of five terpenes in biomethane, namely:

- alpha-pinene,
- beta-pinene,
- para-cymene,
- limonene,
- 3-carene.

The method is specifically developed for these five compounds. Information about the compounds is given in [Annex A](#).

The method is applicable to the determination of individual amount fractions of the five terpenes from 1 $\mu\text{mol/mol}$ up to and including 10 $\mu\text{mol/mol}$. With minor modifications it can also be used for terpene amount fractions above 10 $\mu\text{mol/mol}$.

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

ISO 10715, *Natural gas — Gas sampling*

ISO 14532, *Natural gas — Vocabulary*

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

ISO 19229, *Gas analysis — Purity analysis and the treatment of purity data*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14532 and the following apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>