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Incorporating corrigendum October 2023



BSI Standards Publication

Analysis of natural gas — Biomethane — Determination of amines content

bsi.

National foreword

This Published Document is the UK implementation of CEN ISO/TS 2610:2023. It is identical to ISO/TS 2610:2022. It supersedes PD ISO/TS 2610:2022, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PTI/15, Natural Gas and Gas Analysis.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Analysis of natural gas - Biomethane - Determination of amines content (ISO/TS 2610:2022)

Analyse du gaz naturel - Biométhane - Détermination de la teneur en amines (ISO/TS 2610:2022)

Analyse von Erdgas - Biomethan - Bestimmung des Amingehalts (ISO/TS 2610:2022)

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European foreword

The text of ISO/TS 2610:2022 has been prepared by Technical Committee ISO/TC 193 "Natural gas" of the International Organization for Standardization (ISO) and has been taken over as CEN ISO/TS 2610:2023 by 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.

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.

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Endorsement notice

The text of ISO/TS 2610:2022 has been approved by CEN as CEN ISO/TS 2610:2023 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.

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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*.

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Introduction

This document was developed in response to biomethane specifications such as EN 16723 (all parts)[7]. In other regions, other specifications can apply for biomethane.

In the process of biogas upgrading into biomethane, alkanolamines are used for removing of sulphur-containing components and carbon dioxide. Due to this reason, trace level of these components can be present in biomethane. This method is suited for the detection of these components as well as the determination of their concentration. To inject biomethane into natural gas grids and to use it as an automotive fuel, it needs to meet specifications. For amines the maximum limit value in biomethane is set as 10 mg/m^3 is set in EN 16723 (all parts)[7]. Other specifications can state other thresholds.

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Analysis of natural gas — Biomethane — Determination of amines content

1 Scope

This document specifies the determination of the concentration of alkanolamines in biomethane. The measurement method involves thermal desorption gas chromatography with flame ionization and/or mass spectrometry detectors (TD-GC-MS/FID). The described method is specifically developed for the analysis of five amine compounds, namely:

— monoethanolamine (MEA);

— diglycolamine (DGA);

— diethanolamine (DEA);

— *N*-methyldiethanolamine (MDEA);

— piperazine (PZ).

Information about the compounds is given in Annex A.

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 10715, *Natural gas — Sampling guidelines*

ISO 14532, *Natural gas — Vocabulary*

ISO 16000-6, *Indoor air — Part 6: Determination of organic compounds (VVOC, VOC, SVOC) in indoor and test chamber air by active sampling on sorbent tubes, thermal desorption and gas chromatography using MS or MS FID*

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 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 https://www.electropedia.org/

3.1
amine
chemical compound consisting nitrogen atoms bound to hydrogen and/or carbon atoms having the general formula R_3N

[SOURCE: ISO/TR 27912:2016, 3.5]

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