



International  
Standard

**ISO 2611-1**

**Analysis of natural gas — Halogen  
content of biomethane —**

**Part 1:  
HCl and HF content by ion  
chromatography**

*Analyse du gaz naturel — Teneur en halogènes du biométhane —*

*Partie 1: Détermination de la teneur en HCl et HF par  
chromatographie ionique*

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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](http://www.iso.org/directives)).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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](http://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, *Biomethane for use in transport and injection in natural gas pipelines*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 2611 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

A method for measuring hydrogen chloride (HCl) and hydrogen fluoride (HF) in biomethane is described based on the absorption of these components on an alkali-impregnated quartz fibre filtre. The anions chloride and fluoride are then analysed by ion chromatography with conductimetric detection. The concentrations are expressed in equivalent hydrochloric acid and hydrofluoric acid at appropriate reference conditions.

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# Analysis of natural gas — Halogen content of biomethane —

## Part 1: HCl and HF content by ion chromatography

### 1 Scope

This document specifies a method for the determination of the concentration of hydrochloric acid (HCl) and hydrofluoric acid (HF) in biomethane, after absorption on an alkali-impregnated quartz fibre filtre or in a sorbent trap, by ion chromatography (IC) with conductimetric detection.

The method is applicable to biomethane for concentration levels for HCl from 0,07 mg/m<sup>3</sup> to 35 mg/m<sup>3</sup> and for HF from 0,07 mg/m<sup>3</sup> to 20 mg/m<sup>3</sup>.

Unless stated otherwise, all concentrations in this document are given under standard reference conditions (see ISO 13443). Other conditions can be applied.

This method is also applicable to biogas. This method is intended to support conformity assessment of biomethane and biogas according to specifications, such as the EN 16723 series.

### 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 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 6974-1, *Natural gas — Determination of composition and associated uncertainty by gas chromatography — Part 1: General guidelines and calculation of composition*

ISO 6974-2, *Natural gas — Determination of composition and associated uncertainty by gas chromatography — Part 2: Uncertainty calculations*

ISO 6974-3, *Natural gas — Determination of composition and associated uncertainty by gas chromatography — Part 3: Precision and bias*

ISO 6976, *Natural gas — Calculation of calorific values, density, relative density and Wobbe indices from composition*

ISO 10304-1, *Water quality — Determination of dissolved anions by liquid chromatography of ions — Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate*

ISO 14532, *Natural gas — Vocabulary*

### 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>