

ICS 71.100.20
CCS G 86



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 8984.1-1997

Replacing GB/T 8984-2008

**Gas analysis - Determination of the contents of trace carbon
monoxide, carbon dioxide and hydrocarbon in gases - Gas
chromatography with flame ionization detector**

(English Translation)

Issued on: August 29, 2025

Implemented on: March 1, 2026

Issued by: State Administration for Market Regulation

Table of Contents

- Foreword
- 1 Scope
- 2 Normative references
- 3 Terms and Definitions

Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

This document replaces GB/T 8984-2008 "Determination of Carbon Monoxide, Carbon Dioxide and Hydrocarbons in Gases by Gas Chromatography".

Compared with GB/T 8984-2008, the main technical changes in the "Law" are as follows, apart from structural adjustments and editorial modifications.

- Added regulations regarding the range of component content determination (see Chapter 1);
- Added "Terms and Definitions" (see Chapter 3);
- The principle has been changed (see Chapter 4, Chapter 3 of the 2008 edition);
- Experimental conditions have been added (see Chapter 5);
- The requirements for reagents and materials have been changed (see Chapter 6, Chapter 4 of the 2008 edition);
- The requirements for instruments and equipment have been changed (see Chapter 7, Chapter 5 of the 2008 edition);
- The sampling requirements have been changed (see Chapter 8, Chapter 6 of the 2008 edition);
- The experimental procedures have been changed (see Chapter 9, Chapter 7 in the 2008 edition);
- The requirements for processing experimental data have been changed (see Chapter 10, Chapter 8 of the 2008 edition);
- Requirements for precision and measurement uncertainty have been added (see Chapter 11);

---Added requirements for quality assurance and control (see Chapter 12);

---The requirements for test reports have been changed (see Chapter 13, Chapter 9 of the 2008 edition).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Petroleum and Chemical Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Gas Standardization (SAC/TC206).

1 Scope

This document specifies the method for determining trace amounts of carbon monoxide, carbon dioxide, and hydrocarbons in gases using flame ionization gas chromatography.

Test conditions, reagents and materials, instruments and equipment, sampling, test data processing, precision and measurement uncertainty, quality assurance and control, and testing.

The report requires a description of the principles and procedures of the experimental method.

This document applies to the determination of trace amounts of carbon monoxide, carbon dioxide, and hydrocarbons in gases. For trace amounts of carbon monoxide and carbon dioxide...

The content of carbon oxide is measured in the range of $(0.02\sim100)\times10^{-6}$ (mole fraction); the content of trace hydrocarbon components is measured in the range of...

The range for total hydrocarbons (calculated as methane) is $(0.01\sim100)\times10^{-6}$ (mole fraction); the range for trace total hydrocarbons (calculated as methane) is $(0.03\sim100)\times10^{-6}$.

(Mole fraction). For samples outside the measurement range, the measurement conditions are changed for determination.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 3634.2 Hydrogen - Part 2: Pure Hydrogen, High-Purity Hydrogen and Ultra-Purity Hydrogen GB/T 4842 Argon GB/T 4844 Pure Helium, High-Purity Helium and Ultra-Purity Helium GB/T 4946 Gas Chromatography Terminology GB/T 8170 Rules for rounding off numerical values and the representation and determination of limiting values GB/T 8979 Pure Nitrogen, High-Purity Nitrogen and Ultra-Purity Nitrogen GB/T 14599 Pure Oxygen, High-Purity Oxygen and Ultra-Purity Oxygen GB/T 14850 Glossary of Gas Analysis GB/T 43306 Sampling Guidelines for Gas Analysis

3 Terms and Definitions

The terms and definitions defined in GB/T 4946, GB/T 14850 and GB/T 43306, as well as the following terms and definitions, apply to this document.

Hydrocarbons

Gaseous organic compounds responded to the flame ionization detector.