

ICS 75.060

CCS E 24



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

GB/T 27894.6-2012

Natural gas -- Determination of composition with defined uncertainty by gas chromatography -- Part 6: Determination of hydrogen helium oxygen nitrogen carbon dioxide and C1 to C8 hydrocarbons using three capillary columns

天然气 在一定不确定度下用气相色谱法测定组成 第6部分：用三根毛细管色谱柱测定氢、氦、氧、氮、二氧化碳和C1至C8的烃类

(English Translation)

Issued on: December 31, 2012

Implemented on: July 1, 2013

Issued by: Standardization Administration of China

Table of Contents

Preface
1 Scope
2 Normative references
3 Principle
3.1 Analysis of gas samples
3.2 Analysis of SNG
4 Material
4.1 3 carrier gas
4.2 Auxiliary gas
4.3 Reference gas
5 Apparatus
5.1 Gas Chromatograph System
5.2 Capillary Column
6 Step
6.1 Operating conditions
6.2 Performance Requirements
6.3 Determination of
7 Calculation
8 Precision
9 13 test reports
Appendix A (informative) typical precision value
References

Foreword

GB/T 27894 "natural gas under certain uncertainty by gas-phase chromatography composition" is divided into six parts.

--- Part 1. Analysis of guidelines;

--- Part 2. measurement system characteristics and statistics;

--- Part 3. with two packed columns Determination of hydrogen, helium, oxygen, nitrogen, carbon dioxide and hydrocarbons up to C₈;

- Part 4. laboratory and on-line measuring system using two columns Determination of nitrogen, carbon dioxide and C1 to C5 and C6 of Hydrocarbons;
- Part 5. using laboratory and on-line processing system three columns Determination of nitrogen, carbon dioxide and C1 to C5 and C6 of Hydrocarbons;
- Part 6. Determination of capillary column with three of hydrogen, helium, oxygen, nitrogen, carbon dioxide and hydrocarbons C1 to C8's.

This is Part 6 GB/T 27894 in.

Rules in this section in accordance with GB/T 1.1-2009 given draft.

This section uses the translation method identical with ISO 6974-6:2002 "gas at a certain degree of uncertainty with the composition determined by gas chromatography method Part 6. Determination of capillary column with three of hydrogen, helium, oxygen, nitrogen, carbon dioxide and C1 to C8 hydrocarbons. " Consistent correspondence between this standard international documents and normative references of the following documents.

--- GB/T 5274-2008 gas analyzer calibration weighing method for preparing a mixed gas (ISO 6142:2001, IDT)

--- GB/T 10628-2008 Gas analysis - Determination of the composition of calibration gas mixtures and calibration Comparative Law (ISO 6143:2001, IDT)

--- GB/T 14850-2008 gas analysis vocabulary (ISO 7504:2001, IDT)

--- GB/T 27894.2-2012 natural gas under certain uncertainty by gas chromatography to determine the composition Part 2. Measurement System characteristics and statistics (ISO 6974-2:2001, IDT) this part of the National Gas Standardization Technical Committee (SAC/TC244) centralized.

This section drafted by. China Petroleum Daqing Oilfield Engineering Co., Ltd., China Petroleum and Natural Gas Research Institute, Southwest Oil and Gas Field Company.

1 Scope

This section GB/T 27894 gives the determination of hydrogen gas with three quantitative capillary column, helium, oxygen, nitrogen, carbon dioxide and C1 to C8 hydrocarbon content of a gas chromatography. This method is suitable for analysis within the range of mole fractions given in Table 1 gas group Min. These ranges do not represent the detection limit, and that the use of the method in this range to achieve a predetermined precision. While the sample will have a or more of the components can not be detected, but this method can still apply.

In conjunction with Part 2 GB/T 27894 This part of the GB/T 27894 Part 1 and GB/T 27894 in.

The method is also suitable for the analysis of substitute natural gas.

Table 1 Scope

Component	formula	mole fraction /%
Helium	He	0.002 ~ 0.5
Hydrogen	H ₂	0.001 ~ 0.5
Oxygen	O ₂	0.007 ~ 5
Nitrogen	N ₂	0.007 ~ 40
Methane	CH ₄	40 ~ 100
Carbon monoxide	a CO	0.001 ~ 1
Carbon dioxide	CO ₂	0.001 ~ 10
Acetylene	a C ₂ H ₂	0.001 ~ 0.5
Ethylene	a C ₂ H ₄	0.001 ~ 0.5
Ethane	C ₂ H ₆	0.002 ~ 15
Propylene	a, b C ₃ H ₆	0.001 ~ 0.5
Propane	b C ₃ H ₈	0.001 ~ 5
Isobutane	C ₄ H ₁₀	0.0001 ~ 1
Butane	C ₄ H ₁₀	0.0001 ~ 1
2,2-dimethyl propane (neopentane)	C ₅ H ₁₂	0.0001 ~ 0.5
2-methylbutane (isopentane)	C ₅ H ₁₂	0.0001 ~ 0.5
Pentane	C ₅ H ₁₂	0.0001 ~ 0.5

GB/T 27894.6-2012/ISO 6974-6:2002