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

GB/T 27894.4-2012

Natural gas -- Determination of composition with defined uncertainty by gas chromatography -- Part 4: Determination of nitrogen, carbon dioxide and C1 to C5 and C6+ hydrocarbons for a laboratory and on-line measuring system using two columns

天然气 在一定不确定度下用气相色谱法测定组成 第4部分：实验室和在线测量系统中用两根色谱柱测定氮、二氧化碳和C1至C5及C6+的烃类

(English Translation)

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Foreword

GB/T 27894 "natural gas under certain uncertainty by gas chromatography to determine the 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 C 6 of Hydrocarbons;

--- Part 5. using laboratory and on-line processing system three columns Determination of nitrogen, carbon dioxide and C1 to C5 and C 6 of Hydrocarbons;

--- Part 6. Determination of capillary column with three of hydrogen, helium, oxygen, nitrogen, carbon dioxide and hydrocarbons C1 to C8's.

This section GB/T Part of 427,894.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the translation method identical with ISO 6974-4:2000 "gas at a certain degree of uncertainty with the composition determined by gas chromatography method Part 4. laboratory and on-line measuring system using two columns Determination of nitrogen, carbon dioxide and C1 to C5 and C 6 hydrocarbons. " Consistent correspondence between this standard international documents and normative references of the following documents.

--- GB/T 5274-2008 Gas analysis prepared calibration gas mixture weighing method (ISO 6142:2001, IDT);

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

--- GB/T 27894.2-2011 natural gas under certain uncertainty by gas chromatography to

determine the composition Part 2. Measurement Characteristics of the system and mathematical 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 a quantitative determination of the application two pillar system of natural gas by Gas Chromatography. This method is suitable for real Inspection and testing interior line measurement systems, analysis of the gas component content in mole fraction of the range given in Table 1. These ranges do not represent the subject LOD, and that the use of the method in this range can achieve the required precision. Although the sample may have one or more of the components can not be detected, but the method still apply.

Use this section with the GB/T Part 1 and Part 227 894 combination.

Table 1 Scope

Component	mole fraction range /%	Nitrogen	carbon dioxide	Methane	Ethane	Propane	Isobutane (2-methylpropane)	N-butane	Neopentane (2,2-dimethyl propane)	Isopentane (2-methylbutane)	N-pentane	Hexane (all C6 and higher hydrocarbons accumulated)
	0.001 to 15.0	0.001 to 10	75 to 100	0.001 to 10.0	0.001 to 3.0	0.001 to 1.0	0.001 to 1.0	0.001 to 0.5	0.001 to 0.5	0.001 to 0.5	0.001 to 0.2	

Note 1: Oxygen is not a normal component of natural gas. Online instrument gas samples taken generally do not contain oxygen, so that if the air since the oxygen-containing the presence of oxygen will be measured together with the nitrogen. Since the detector has slight differences in response to oxygen and nitrogen, and the resultant (nitrogen, oxygen) results it has a smaller degree of error. Nevertheless, the results of natural gas/air mixture is still quite accurate, because oxygen, nitrogen, two points are on the Calorific value no contributions.

Note 2: The helium and argon content is assumed to be negligible and no change, and therefore does not require determination of helium and argon.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 14850-2008 gas analysis vocabulary (ISO 7504:2001, IDT) GB/T 27894.1-2011

natural gas under certain uncertainty by gas chromatography part 1. Analysis Guidelines
(ISO 6974.1:2000, IDT)