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

**GB/T 11062-2020**

Replacing GB/T 11062-2014

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**Natural gas - Calculation of calorific values, density, relative  
density and Wobbe indices from composition**

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## Table of Contents

|                                                                       |    |
|-----------------------------------------------------------------------|----|
| 1 Scope .....                                                         | 1  |
| 2 Normative references .....                                          | 1  |
| 3 Terms and definitions .....                                         | 2  |
| 4 Symbols and units .....                                             | 4  |
| 5 Principle of the method .....                                       | 5  |
| 6 The properties of ideal gas and real gas .....                      | 6  |
| 7 Molar calorific value calculation .....                             | 6  |
| 8 Mass calorific calculation .....                                    | 7  |
| 9 Volume calorific calculation .....                                  | 8  |
| 10 Calculation of related parameters .....                            | 9  |
| 11 Uncertainty calculation .....                                      | 11 |
| 12 Data sheet .....                                                   | 14 |
| Appendix A (Normative Appendix) Values of auxiliary constants .....   | 21 |
| Appendix B (Normative Appendix) Uncertainty calculation formula ..... | 23 |
| Appendix C (informative appendix) Conversion factor .....             | 27 |
| Appendix D (informative appendix) Calculation example .....           | 29 |
| Reference .....                                                       | 44 |

## Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 11062-2014 "Natural Gas Calorific Value, Density, Relative Density and Wobbe Index Calculation Method". This standard

Compared with GB/T 11062-2014, the main technical changes are as follows.

---Modified the scope of the standard, refined the content, and revised the "dry natural gas" in the original standard to "natural gas" (see Chapter 1,.2014

Chapter 1 of the Year Edition);

---Modified the compression factor calculation formula (see 6.1, 4.2 in the.2014 edition);

---Modified the basic data and gave the corresponding uncertainty (see Table 1, Table 2, Table 3, Table 1, Table 2, Table 3 in the.2014 edition);

---Deleted the ideal gas mass calorific value (see Table 4 in the.2014 edition);

---Deleted the ideal gas volume calorific value (see Table 5 in the 2014 edition).

This standard uses the translation method equivalent to ISO 6976:2016 "Calculation of Natural Gas Calorific Value, Density, Relative Density and Wobbe Index

method". The Chinese documents that have a consistent correspondence with the international documents cited in this standard are as follows.

---GB/T 27894.1-2020 Gas Chromatography Determination of Composition and Calculation of Uncertainty Related to Natural Gas Part 1. Total

Guidelines and composition calculation (ISO 6974-1:2012, IDT)

---GB/T 27894.2-2020 Gas Chromatography Determination of Composition and Calculation of Uncertainty Related to Natural Gas Part 2. No

Calculation of certainty (ISO 6974-2:2012, IDT)

This standard was proposed and managed by the National Natural Gas Standardization Technical Committee (SAC/TC244).

Drafting organizations of this standard. China National Petroleum Corporation Southwest Oil and Gas Field Branch Natural Gas Research Institute, CNPC International Pipeline

Co., Ltd., China Jiliang University, Langfang Branch of China National Petroleum Corporation Exploration and Development Research Institute, China National Petroleum Corporation

Co., Ltd. North China Oilfield Branch, Emerson Process Control Co., Ltd.

## 1 Scope

This standard specifies the calculation of the high calorific value, low calorific value of natural gas, natural gas substitutes and other gas fuels when the molar composition of gas is known.

The method of calorific value, density, relative density, high Wobbe index and low Wobbe index. Specifies the calculation of gas under common reference conditions

The method of the physical parameters of the mixture.

The mole fraction is defined as a normalized result, which can be completed by the methods provided in ISO 6974-1 and ISO 6974-2.

The values and uncertainties of the physical properties of the various pure components used in the calculation method are given in the table, and their sources are given. Also give

The standard uncertainty evaluation method of the calculated physical property parameter values is presented.

The calculation method of physical property parameters based on mole, mass or volume is suitable for any natural gas, natural gas substitutes and usually gas

Other fuels in the body state. For the calculation of physical property parameters based on volume, this method is only suitable for large compressibility under reference conditions.

In a mixture of 0.9.

Appendix D gives examples of calculation methods.

Note 1. The dimensionless molecular weight is numerically equal to the molar mass ( $\text{kg}\cdot\text{kmol}^{-1}$ ).

Note 2. The method described in this standard does not explicitly limit the composition range. However, under the reference conditions, the physical property parameter requirements are calculated based on the volume

The compression factor of the mixture is greater than 0.9.

Note 3. Since the mole fraction of water cannot usually be obtained from chromatographic analysis, the usual practice is to first calculate the physical property parameter values of the dry gas, and then perform a separate process.

Calculate the influence of water vapor in the sequence. If the mole fraction of water vapor is known, it can be calculated according to the procedure specified in this standard.

ISO / T R29922 discusses the influence of water vapor on directly measured calorific value and calculated calorific value.

Note 4. For hydrocarbons above C7, any isomers detected are included in the normal isomers of the same carbon number.

Note 5. If you need to replace C6 or C7 in the unanalyzed component with a single virtual component, the user can set its mole fraction by himself, so the virtual component

To meet specific application purposes. Any "non-reactive water" and "non-combustible hydrogen sulfide" etc. is to set the appropriate combustion enthalpy value to 0

Virtual component.

## 2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated references, the latest version (including all amendments) applies to this document.

ISO 6974-1 Gas Chromatographic Determination of Natural Gas and Related Uncertainties in Calculation Part 1. General Guidelines and Composition Calculation

Calculated

(Natural gas-Determination of composition and associated uncertainty by gas chromatography-

Part 1. General guidelines and calculation of composition)

ISO 6974-2 Gas Chromatographic Determination of Natural Gas and Related Uncertainties  
in Calculation Part 2. Uncertainty Calculation

(Natural gas-Determination of composition and associated uncertainty by gas chromatography-

Part 2. Uncertainty calculations)

ISO 14912.2003 Gas analysis-Conversion of gas mixture composition data

(Gas analysis-Conversion of gas mixture

composition data)