ICS 75.060
CCS E 24

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/Z 35474-2017

Natural gas -- Technical explanation for calculation of physical properties from composition

Issued on: December 29, 2017 **Implemented on: July 1, 2018**

Issued by: General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China, Standardization Administration of the People's Republic of China

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Foreword

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

This guidance document is modified using the redrafting method using ISO /T R29922.2017 "Based on ISO 6976 for calculation of physical properties"

Support information.

The technical differences between this guidance technical document and ISO /T R29922.2017 and their reasons are as follows.

--- According to the standard writing habits of our country, delete the second chapter of ISO /T R29922.2017 without substantive content "normative quotation

"" and Chapter 3 "Terms and Definitions" to increase the operability of the document; subsequent chapters and article numbers have been adjusted accordingly.

The following editorial technical documents have been edited as follows.

--- Change the standard name and delete the ISO standard number in the original name.

This guidance technical document was proposed by China National Petroleum Corporation.

This guidance document is under the jurisdiction of the National Natural Gas Standardization Technical Committee (SAC/TC244).

This guiding technical document drafting unit. Natural Gas Research Institute of PetroChina Southwest Oil and Gas Field Branch, Puguang Branch of Sinopec Zhongyuan Oilfield

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laboratory.

Introduction

Accurate determination of the quantity and quality of gases is required during the international and intra-country natural gas trade transfer. ISO 6976.

2016 details the calculation methods for natural gas property parameters, which describe the combustion characteristics associated with gas quality, among which

Including. high (low) position heat, density, relative density and high (low) position Wobbe index. The method also includes calculating any type of natural gas, natural gas

Substitutes and known components are similar to the above properties of the fuel gas under the usual reference conditions.

This guidance technical document is a detailed description of the technical materials involved in the calculation method in ISO 6976.2016.

Support and explanation for ISO 6976.2016. This guidance document does not need to be used in daily calculations.

The GB/T 11062 is modified to ISO 6976. This guidance document can be used to support and interpret the corresponding parts of GB/T 11062.

Natural gas is calculated by composition

Technical description of the parameters

1 Scope

This guidance document is for ISO 6976.2016 "Calculation of calorific value, density, relative density and Wobie by natural gas composition.

Technical description of the number. ISO 6976.2016 does not require the use of this guidance technical document when applied to the calculation of everyday physical parameters.

Each chapter in this guidance technical document corresponds to the relevant calculation method in ISO 6976.2016, and the contents of each chapter are complete and independent.

The chapters of this guidance technical document can be used for reference of the calculation method of the relevant physical parameters, and do not need to be used as a whole.

2 symbols and abbreviations

The following symbols and abbreviations apply to this document.

2.1 Quantity

The symbols of the quantity and their meanings are shown in Table 1.

Table 1 Meaning of quantity

Symbol meaning unit

Lower case letters

a The number of carbon atoms in the general molecular formula CaHbNcOdSe -

b The number of hydrogen atoms in the general molecular formula CaHbNcOdSe -

c The number of nitrogen atoms in the general molecular formula CaHbNcOdSe -

d The number of oxygen atoms in the general molecular formula CaHbNcOdSe -

e The number of sulfur atoms in the general molecular formula CaHbNcOdSe -

g The first two-dimensional profit coefficient B calculates the coefficient in the formula -

h mol?kJ/mol

k contains factor -

m number of data sets -

n Number of measurements in a data set -

p pressure (absolute pressure) kPa

q The amount of determination (variable) entered when calculating Y

r correlation coefficient -

s summation factor -

t Celsius °C

Standard uncertainty (variable) of u(Y) Y

u(Y,Y') Covariance of Y and Y' (variable)