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

GB/T 17747.2-2011

Replacing GB/T 17747.2-1999

**Natural gas -- Calculation of compression factor -- Part 2:
Calculation using molar-composition analysis**

天然气压缩因子的计算 第2部分：用摩尔组成进行计算

(English Translation)

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Foreword

GB/T 17747 "Gas Calculation of compression factor" includes the following three parts.

- Part 1. Introduction and guidelines;
- Part 2. The calculation of molar composition;
- Part 3. Calculation using physical properties.

This section is Part 2.

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

This Part replaces GB/T 17747.2-1999 "gas - Calculation of compression factor - Part 2. calculation of molar composition." this section compared with the GB/T 17747.2-1999 The main changes are as follows.

- According to ISO 12213.2:2006 modified 1 "minors and trace List" table of contents;
- Modify the diagram symbols and legend;
- "±" number --- Remove the body of the uncertainty of the value before.

This section uses redrafted Law Amendment uses ISO 12213-2:2006 "gas - Calculation of compression factor - Part 2. Moore Composition analysis. " this part of ISO 12213-2:2006 The main differences are.

- Chapter 2 normative references, and some apply to international standard formulation modified to apply to our standard formulation, ISO Replace the standard content of the

corresponding national standards, the remaining chapters corresponding to the content is modified accordingly;

--- 4.4.1 and 4.4.2 will be increased by high heat and relative density of natural gas under the terms of the standard reference conditions corresponding values Note;

--- The contents of the note B.2.1.1 moved to the last paragraph of 4.3;

--- Remove the body " $\pm$ " number of Uncertainty value before;

--- Delete ISO standard foreword, preface to redraft this part;

--- Delete the contents of Chapter 5;

Appendix F --- deleted and references;

This part of the National Gas Standardization Technical Committee (SAC/TC244) centralized.

This section drafted by. China Southwest Oil & Gas Field Branch, Research Institute of Petroleum, China Southwest Oil and Gas Field Branch Petroleum Safety and Environmental Protection and Technical Supervision Institute.

1 Scope

This section GB/T 17747 provides for natural gas, including labor and other similar blend a mixture of gaseous state only memory when the compression factor calculation method.

This calculation method is composed of a known gas mole fraction of detailed and relevant pressure and temperature to calculate the gas compressibility factor.

This calculation method is also known as AGA8-92DC calculation method is mainly used in pressure p and temperature T Gas Transmission and Distribution of normal Pipe gas range, calculation of uncertainty of about 0.1%. Also available in a wider range of pressure and temperature for a wider composition range of gas Body, but the results will increase the uncertainty (see Appendix E).

About the scope of application of the calculation methods and applications described in more detail, see GB/T 17747.1.

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 3102.3-1993 Quantities and units of mechanics Quantities and units of GB 3102.4-1993 Thermal GB/T 11062-1998 natural gas calorific value, density, relative density and Wobbe

index calculation method (ISO 6976:1995, NEQ) GB/T 17747.1-2011 Gas Calculation of compression factor - Part 1. Introduction and guidelines (ISO 12213-1:2006, MOD)

3 Terms and Definitions

Terms and definitions GB/T 17747.1 given apply to this document. Meaning and unit symbol appears in the text represented Mitsuke Record A.

4.1 Principle

AGA8-92DC equation calculation method used is based on the concept. the nature of the capacity of pipeline natural gas composition characterized by and calculations. Composition, pressure and temperature are used as input data calculation method.

This calculation method requires detailed molar gas composition analysis. The analysis included more than 0.00005 mole fractions of all components.

For a typical gas pipe, assay components including carbon number up to all of C7 or C8 hydrocarbons, and N₂, CO₂ and He. Other gases, points Analysis of steam need to be considered such as H₂O, H₂S and C₂H₄ and other components. Artificial gas, H₂ and CO may also be an important component of the analysis.

4.2 AGA8-92DC equation

AGA8-92DC calculation method AGA8 detailed characteristic equation (expressed as the following equation AGA8-92DC, see GB/T 17747.1);