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

GB/T 17286.1-2016

Replacing GB/T 17286.1-1998

**Liquid hydrocarbons dynamic measurement proving systems
for volumetric meters -- Part 1: General principles**

液态烃动态测量 体积计量流量计检定系统 第1部分:一般原则

(English Translation)

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Foreword

GB/T 17286 "liquid hydrocarbon dynamic measurement volume measurement flowmeter verification system" is divided into four parts.

- Part 1. General principles;

Part 2. Volume tube;

Part 3. Pulse insertion technology;

- Part 4. Guide for volume tube operator.

This part is part 1 of GB/T 17286.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part of the replacement GB/T 17286.1-1998 "Liquid Hydrocarbon Dynamic Measurement Volumetric Flowmeter Verification System Part 1. General in principle". This section and GB/T 17286.1-1998 technical content on the main changes are as follows.

--- deleted ISO preface;

--- adjust the standard structure, remove the original ISO standard in the suspension section, an increase of part of the secondary title name;

--- for the unified format, in 3.1, given the "standard gauge" interpretation;

- the term "counting agency" appears on 4.6 and later, and is changed to "tolerance modulator";

--- on the 4.9, the original "continuous four times after the test, there is no two consecutive data to achieve the allowable repeatability" to "continuous four times after the test, there is no three consecutive data to achieve the allowable repeatability";

- the titles of chapters 5, 6, 7 and 8 have been modified;

--- some of the standard inaccurate, non-standard statements were modified.

This part uses the translation method equivalent to the international standard ISO 7278-1. 1987 "Liquid Hydrocarbon Dynamic Measurement Volume Metering Flowmeter Verification System Part 1. General principles".

And this part of the normative reference documents have a corresponding relationship between China's documents are.

Statistical control of volumetric metering systems for dynamic measurement of liquid hydrocarbons (ISO 4124.:1994, IDT) GB/T 17287-1998 this part of the National Oil and Gas Standardization Technical Committee (SAC/TC355) proposed and centralized.

This part of the drafting unit. China National Petroleum Corporation Metrology and Testing Institute.

Introduction

GB/T 17286.1-1988 is based on the international standard ISO 7278 "liquid hydrocarbon dynamic measurement volume measurement flow meter verification system" 1 part of the draft, in China's dynamic measurement of liquid hydrocarbons played an important guiding role. In order to adapt to China's oil industry continues to develop the need to promote international trade and exchange, it is necessary to GB/T 17286.1-1988 revised. ISO 7278 on volumetric tubes, standard Measuring device and pulse insertion technology are described in detail. The relevant standards for other types of verification systems will be supplemented as needed.

The calibration flowmeter is to determine the relative error of the flowmeter or the flowmeter coefficient. Flow meter coefficient and measured liquid flow, temperature, pressure and viscosity and other factors.

The purpose of determining the relative error of the flowmeter is to know whether the flowmeter is operating within the specified or permissible error range;

The coefficient is used to correct the flowmeter indication value.

Dynamic measurement of liquid hydrocarbons Volumetric metering system Part 1. General principles

1 Scope

This part of GB/T 17286 establishes the general principles to be followed in the volumetric flowmeter verification system and is applicable to liquid hydrocarbon dynamics measuring.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the

latest edition (including all modifications) applies to this document.

ISO 4124 Liquid Hydrocarbons Dynamic Measurement Volumetric Metering System
Statistical Control
(Liquidhydrocarbons-Dynamicmeas-urement-statisticalcontrolofvolumetricmeteringsystems)

3 Metrological standard

3.1

The type of the standard the type of standard is divided into.

- a) standard gauge. According to the specified structure, made of metal (stainless steel, carbon steel, etc.), with a certain volume, can be used as capacity Value of the measurement instrument.
- b) volume tube. Including two-way volumetric tubes and one-way volumetric tubes, and 6.7 small volume tubes for special applications.
- c) Standard flowmeter. A flowmeter as a transfer standard is called a standard flowmeter. The standard flowmeter should be close to the actual operating conditions After passing the test, the working flow meter is verified by the method of volume comparison. This method may generate additional errors.

3.2 Standard set

The standard can be located in the measurement station (fixed or active), the flow meter on-line liquid test can also be located in the center of the test Station, on the flow meter for off-line verification.

3.3 Minimum number of pulses

In order to control the maximum error of the counting system within $\pm 0.01\%$ of the test, each test run once, the flow meter should be issued at least 10000 A pulse. If pulse insertion is used, the number of pulses can be reduced and allows the use of a flow meter with a smaller pulse per unit volume or Small volume of the measurement standard.

4.1 Verification requirements

In the actual conditions of the pressure and temperature conditions, with the measured liquid according to the expected, or the provisions, or both agreed flow, the flow meter into