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**Petroleum liquid -- Automatic pipeline sampling**

石油液体管线自动取样法

**(English Translation)**

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## Foreword

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

This standard uses the translation method identical with ISO 3171. 1988 "Liquid petroleum pipeline automatic sampling method" (in English).

This standard made the following editorial changes.

Legend --- To meet the domestic habits of reading, the original international standard focused on the body of the standard after the change in the standard reference text for the first time the text accompanying legend after.

This standard by the National Standardization Technical Committee of Oil and Gas (SAC/TC355) centralized.

This standard was drafted. Petroleum Industry Testing Institute of Measurement.

## Introduction

Collecting a sample of the flowing medium in the pipeline, to the average compositional quality and they represent a number of media. On pipeline Samples were analyzed for a number of media, the composition can be measured, and the water content of the precipitate, or the density, viscosity, vapor pressure, etc. Any other weight to attribute.

Hand line sampling method is applicable to homogeneous liquid, the composition and quality does not change significantly over time. If this is not the case, it is recommended Automatic sampling method, because the automatic sampling is continuous or repeated a plurality of sample extracted from the pipeline, thereby ensuring that any group of the bulk liquid A change can be reflected in the acquired samples. To make the sample as representative as possible, we shall meet the criteria relating to the sampling point of the liquid Uniformity requirements and sample extraction frequency requirements.

Should consider providing backup sample using manual sampling method, to prepare for the autosampler is not working properly, but due to manual sampling line Conditions change and increased uncertainty (see ISO 3170).

Equipment and techniques described in this standard is usually used to stabilize crude oil sampling, but if you already consider security measures and samples at Reasonable difficulty, can be used for non-stable crude oil and refined products.

For the determination of density, water and sediment collected representative samples of crude oil is a key process. Numerous studies show that during transportation Determination of crude oils parameter values \u200b\u200brepresentative to have the following four distinct steps.

- a) flow conditions to meet the requirements of the medium of the inner tube;
- b) sampling to be reliable, efficient, ensure proportional to the flow rate within the sampling tube;
- c) sample storage and transportation to meet the requirements;
- d) for laboratory sample preparation and precise segmentation analysis requirements.

The current standard reference method and type of equipment used for sampling, but does not preclude future use has not yet developed for industrial use Way of new equipment, provided that such devices can obtain a representative sample, and this standard in line with the general requirements and methods.

The standard Chapter 16 and JJF1059-1999 "Evaluation and Expression of Uncertainty in Measurement" Uncertainty in classification and calculation methods party Surface differences, should pay attention to when using the difference, to avoid confusion.

Theoretical calculation methods and cross-sectional test appendix of this standard includes information about mixing tube flow, but also given to determine the installation location sampler A basic guide.

Petroleum liquids pipeline automatic sampling

## 1 Scope

This standard gives the recommended method of gathering pipeline with an automatic way of representative samples of crude oil and liquid petroleum products.

**Note:** Although crude Always use this term throughout the standard, but under the conditions applicable technology and equipment, this standard is equally applicable to other petroleum liquids.

This standard does not apply to liquefied petroleum gas and liquefied natural gas samples.

The main purpose of this standard is to standardize the testing, operation, maintenance and monitoring of crude oil sampler to provide guidance.

Crude oil sampling operation to provide a representative sample of the following measurement items.

- a) crude oil composition and quality;
- b) the total water content;
- c) not be used as components of other impurities transportation of crude oil.

If the determination of a), b) and c) the sampling operation conflicting, requirements can be sampled separately.

**Note:** The results of the laboratory analysis can be used to transport crude oil to declare adjustment calculation, but this does not include the standard adjustment method.

This standard covers sample preparation, involving the collected samples were transferred to various aspects of the laboratory instrument.

This standard describes the currently believed to be possible to collect samples of the most representative sampling methods and operations, which can be accurately aqueous Determination. However, the inner tube with a sample of water collected in the autosampler measurement accuracy depends not only on the individual components of the sampling system constituted Configuration and characteristics, but also on the accuracy of subsequent analysis.

Chapter 16 introduces the theoretical method for evaluating automatic sampling system and

analytical testing of total uncertainty. Chapter 15 describes a scene Practical test steps.

The parties concerned should generally agreed provisions allowing a certain range of accuracy of the automatic sampling system.

In Chapter 15 of Table 4, according to the accuracy of an indication of actual test results, the performance of the automatic sampling system of classification. These indicators Standard can be qualified as a basis of reference and individual performance agreements.

## 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 23256-2009 Determination of petroleum liquid petroleum pipeline automatic sampling liquid autosampler, the water content of the performance statistics Learning Assessment (ISO/T R9494.1997, IDT) ISO 3170 Petroleum liquids manual sampling method (Petroleumliquids-Manualsampling) ISO 3165 Sampling of chemical products for industrial use (Samplingofchemicalproductsforindustrialuse-Safetyin sampling) Determination of water and sediment ISO 3734 crude oil and fuel oil (centrifugation) (Crudepetroleumandfueloils-Determina-tionofwaterandsediment-Centrifugemethod)

## 3 Terms and Definitions

The following terms and definitions apply to this document.