

ICS 75.040
CCS E 21



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

GB/T 26986-2011

**Crude petroleum -- Determination of water -- Potentiometric
Karl Fischer titration method**

原油水含量测定 卡尔·费休电位滴定法

(English Translation)

Issued on: September 29, 2011

Implemented on: January 1, 2012

Issued by: Standardization Administration of China

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Foreword

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

This standard uses redrafted Law Amendment uses ISO 10336:1997 "Determination of crude water Karl Fischer potentiometric titration" (English Chinese Version).

This standard and ISO 10336:1997 The main differences are as follows.

- The Chapter 8 of formula (3) " $W_v = W_m \rho$ " in sample density " ρ " changed relative density " D ", according to a predetermined density measurement of temperature Degrees and the " $15\text{ }^{\circ}\text{C}$ " to " $20\text{ }^{\circ}\text{C}$ ", this modification has no effect on the precision of the results;
- Added "7.4" on the content of viscous crude oil sample injections;
- Added "8.2" formula viscous crude oil sample water content;
- Increased Chapter 10, "quality assurance and control." The standard proposed by China National Petroleum Corporation.

1 Scope

This standard specifies the direct determination of water content in crude oil by Karl Fischer potentiometric titration method.

This standard applies to the determination of water content of crude oil, the quality or content of the total amount of divalent sulfur or mercaptan sulfur ions both scores 0.005% to 0.05% of the oil, the water content of the measurement range of the mass fraction of 0.05% to 2.00%; for thiol sulfur ions or divalent sulfur Mass fraction of total sulfur content or both is less than 0.005% of the crude oil, the water content of the measurement range of the mass fraction of 0.02% 2.00%.

Note: a lot of substance and a variety of compounds or redox reaction of condensation may interfere with Karl Fischer titration method for the determination of water content. But crude oil interfering substances Only ions may be mercaptans and sulfides. When the water content of the

measurement range of the mass fraction of 0.05% to 2.00%, mass fraction of less than 0.05% sulfur Interference is small.

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 4756 petroleum liquids hand sampling method (GB/T 4756-1988, eqv ISO 3170. 1988)

GB/T 6682 analytical laboratory use specifications and test methods (GB/T 6682-2008, ISO 3696. 1987, MOD)

SY/T 5317 petroleum liquids pipeline automatic sampling (SY/T 5317-2006, ISO 3171. 1988, IDT)

ISO 3733. 1976 Petroleum products and bituminous materials - Determination of water distillation (Petroleumproductsandbituminous materials-Determinationofwater-Distillationmethod)

ISO 3734:1997 Petroleum products residual fuel oils - Determination of water and sediment centrifugation (Petroleumproducts-Determinationofwaterandsedimentinresidualfueloils-Centrifugemethod)

3 Principle

Crude oil through the mixer after mixing, weighed amount of sample is injected into the titration solvent containing Karl Fischer titrator drops Given container. By Karl Fischer titration reagent water content until the potential end.

4 Reagents and materials

Unless otherwise indicated in the analysis using only analytical reagent.

4.1

Karl Fischer reagents. the use of this standard to meet the performance requirements of the product reagents.

Containing pyridine 4.1.1 Karl Fischer reagents. Nominal water equivalent to 5 mg of water per ml of reagent (5mg/mL). Methanol or ethylene glycol Ether as the basic solvent. When you press the 7.2 calibration, this Karl Fischer reagent water equivalent of the minimum should be 3mg/mL. 4.6.1