

ICS 75.040
CCS E 21



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

GB/T 18609-2011

Replacing GB/T 18609-2001

**Determination of acid number of crude oil by potentiometric
titration**

原油酸值的测定 电位滴定法

(English Translation)

Issued on: September 29, 2011

Implemented on: January 1, 2012

Issued by: Standardization Administration of China

Table of Contents

Foreword

1 Scope

2 Normative references

3 Terms and Definitions

Foreword

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

This standard replaces GB/T 18609-2001 "crude acid number potentiometric titration." this standard and GB/T 18609-2001 main differences (mainly because of changes in the use of ASTM D664-07 produce) as follows.

--- In the "program" in the original standard "measurement range of the acid value is greater than 0.05mgKOH/g"; was revised to "Determination of acid value in the range of 0.1mg/g ~ 150mg/g ", in order to adapt to the requirements of the acid value of the crude oil;

--- In the "titration solvent", taking into account differences in solvent solubility, delete the original standard "250mL tetrahydrofuran", the original standard "245mL isopropanol" was changed to "495mL ± 5mL of isopropanol";

--- Delete the original standard "buffer A"; in "5.1.8" added "standard buffer solution pH11" and to enhance operability for sex;

--- Original standard "6.1.3 calomel reference electrode. straight or 232" was changed to "the reference electrode. silver/silver chloride (Ag/AgCl) reference Electrode, filled with 1mol/L ~ 3mol/L ethanol solution of lithium chloride ";

--- Modified "test electrode";

--- Modify the "1";

--- Modify the "precision";

--- Modified "test report";

--- In the "normative references", the increase SY/T 5317 and SY/T 6520, delete GB/T 260 and GB/T 2538;

--- Add "Quality Assurance and Control";

--- Increase the "warning" content.

This standard uses redrafted law revision adopted ASTM D664-07 "Petroleum products - Determination of acid potentiometric titration" (English Version).

The main differences between standard and ASTM D664-07 follows.

--- The ASTM D664-07 the Chinese name "Petroleum products - Determination of acid potentiometric titration method" to "measure the acid value of the crude oil Potentiometric titration set";

--- In the "range" will "Petroleum Products and Lubricants acidic component"; was revised to "crude acidic component";

--- Delete "meaning and purpose";

--- Delete "key words";

--- Delete "appendix." The main contents of the appendix has been reflected in the standard.

The standard proposed by China National Petroleum Corporation.

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

This standard was drafted. China University of Petroleum (East China), Sinopec Research Institute of Petroleum, China Petroleum Pipeline Company SCIENCE AND RESEARCH Study center, quality inspection center of the Tarim Oilfield Company, Xinjiang Oilfield Company Production Technology Research Institute.

1 Scope

1.1

standard specifies the determination of the acid value of the crude oil by potentiometric titration method.

1.2

This standard applies to the determination can be dissolved in a mixed solvent of toluene and isopropanol, acidic components in crude oil. These acidic components in Dissociation constant of water is greater than 10^{-9} ; dissociation constant of less than 10^{-9} is very weak acids do not interfere. Hydrolysis constant is greater than 10^{-9} salts will He will participate in the reaction. Determination of acid value range of 0.1mg/g ~ 150mg/g.

1.3

This standard applies to the determination of crude oil water content of less than 0.5%.

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 4756-1998, ISO 3170. 1988, eqv) GB/T 6682 analytical laboratory use specifications and test methods (GB/T 6682-2008, ISO 3696. 1987, MOD) GB/T 8929 Determination of water content of crude oil distillation method (GB/T 8929-2006, ISO 9029:1990, MOD) SY/T 5317 petroleum liquids pipeline automatic sampling (SY/T 5317-2006, ISO 3171. 1988, IDT) SY/T 6520 Standard Test Method for crude oil dehydration autoclave method

3 Terms and Definitions

The following terms and definitions apply to this document.

Acid value acidnumber when the end of the sample to the amount of base required to titrate 1g crude to mass fraction of potassium hydroxide in milligrams per gram (mg/g).

In this method, the titration dissolved in a solvent of oil samples from the initial potential of the start of the titration instruments, electric jump to obvious points of Bit value or the corresponding standard alkaline buffer potential value freshly prepared solution as the titration endpoint.

Acid value strongacidnumber and 1g crude sample strongly acidic components required amount of base, potassium hydroxide mass fraction in milligrams per gram (mg/g).

Titration strong acid, dissolved in a solvent in the oil sample from the start of the titration initial potential of the instrument to the potential value of the apparent point of jump or the corresponding potential value of the new formulation of the standard acid buffer solution as the titration end point. Crude oil generally does not require measuring acid value, if special circumstances when the need to measure the acid value, the measurement results should indicate the value of a strong acid, and the acid value to indicate the distinction.

Principle 4

The sample is dissolved in a solvent consisting of toluene, isopropanol and a small amount of distilled water, using a glass electrode and a Ag/AgCl reference electrode