

ICS 75.040
CCS E 21



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

GB/T 18612-2011

Replacing GB/T 18612-2001

Determination of organic chloride content in crude oil

原油有机氯含量的测定 原油有机氯含量的测定

(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
4 Crude and distillate purification
4.1 Reagents and materials
4.2 Instrument
4.3 Sampling
4.4 Preparation of the sample
4.5 Calculation Results
5 Method A --- sodium biphenyl reduction potentiometric titration
5.1 Reagents and materials
5.2 Instrument
5.3 Analysis Steps
5.4 Calculation Results
5.5 Precision and departing
6 Method B --- combustion oxidation method microcoulometry
6.1 Reagents and materials
6.2 Instrument
6.3 Analysis Steps
6.4 Calculation Results
6.5 Precision and departing
7 Quality assurance and control
8 Test Report

Foreword

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

This standard replaces GB/T 18612-2001 "crude organic chloride content measured microcoulometry Law", and GB/T 18612-2001 Compared to the main technical changes are as follows.

--- Standard name from "crude organic chloride content measured microcoulometry Act" to "Determination of organic chloride content of crude oil";

--- Increased Chapter 5, "Method A --- sodium biphenyl reduction potentiometric titration";
--- Revised Chapter 6, "Method B --- combustion oxidation microcoulometry Law" precision (2001 Version 15.1; edition 6.5.1);

--- Increased Chapter 7, "quality assurance and control." this standard uses redrafted law revision adopted ASTM D4929-07 "Determination of organic chloride content of crude oil." this standard ASTM D4929-07 compared to the structure have more adjustment, listed in Appendix A of this standard and ASTM D4929-07 the reg number control list.

This standard also made the following editorial changes.

--- Delete Chapter 4 ASTM D4929-07 the "meaning and purpose";
--- Chapter 25 ASTM D4929-07 delete "key words";
--- Added "Test Report" (Chapter 8 of this standard);
--- Remove the informative annex ASTM D4929-07.

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. Daqing Oilfield Engineering Co., Ltd. China Petrochemical Research Institute of Petroleum, China PetroChina Pipeline Company Pipeline Technology Research Center.

1 Scope

1.1

standard specifies the determination of organic chloride content of crude oil in two ways. Method A --- including biphenyl and sodium reduction potentiometric titration Method B --- microcoulometry combustion oxidation method.

1.2

This standard applies to the determination of organic chlorine content is more than 1µg/g of crude oil. Method B does not apply where the total sulfur content of more than chlorine-containing organic 10,000 times the amount of crude oil.

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 6536 Petroleum products - Determination of distillation (GB/T 6536-1997, ASTM D86:1995, eqv) 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) Principle 3.3.1 naphtha fraction obtained by crude distillation 204 °C before the distillation process should be GB/T 6536 requirements execution. With naphtha fraction Base and sufficient water elution to remove hydrogen sulfide and inorganic chlorides contained.

3.2 Determination of the following two methods naphtha fraction eluted after organochlorine content.

3.2.1 Method A. Transfer by naphtha fraction after elution to a separatory funnel containing dissolved sodium in toluene biphenyl. There may be sodium biphenyl Organic halide is converted to inorganic halides, the aqueous phase is concentrated by evaporation, addition of acetone potentiometric titration, to calculate the crude organic chloride content.

Crude organic bromide and iodide of the organic method influential.

3.2.2 Method B. injected to contain about 80% oxygen and 20% of an inert gas (for example, by a naphtha fraction after elution. helium, argon Air or nitrogen) the gas flow through the tube 800 °C pyrolysis temperature of the organic chlorine into chlorides and oxychlorides, and silver ions in the titration cell Sub reaction. Consumed by the electrolysis silver ion Coulomb meter supplement, the total power consumption of silver ions added is calculated based on the crude oil Organochlorine content. Crude organic bromide and iodide of the organic method influential.

Chloride titration cell reaction is as follows.

Cl⁻ Ag⁺ → AgCl (down) Coulomb reaction of the silver ions consumed in the reaction occurs as follows.

A → g Ag e⁻

4.1 Reagents and materials

Unless otherwise specified in the analysis using only analytical reagent.

4.1.1

potassium hydroxide (KOH).

Warning --- may cause severe skin burns.

4.1.2

acetone (CH₃COCH₃).

Warning --- flammable and may cause fire, harmful to health.

4.1.3

toluene ($\text{C}_6\text{H}_5\text{CH}_3$).

Warning --- flammable, harmful to health.

4.1.4

Water. in line with GB/T 6682 in two water requirements.

4.1.5

potassium hydroxide solution. $c(\text{KOH}) = 1\text{mol/L}$.

4.1.6

filter paper.

4.2 Instrument

4.2.1

round-bottomed distillation flask. heat-resistant glass, volume 1L, short bottleneck and has a 24/40 ground glass outside interface.

4.2.2

T-type takeover. heat-resistant glass, with a branch pipe 75° , with 24/40 ground glass interface.

4.2.3

Thermometer. temperature range of $0^\circ\text{C} \sim 300^\circ\text{C}$, the minimum scale of 1°C .

4.2.4

Thermometer Interface. heat-resistant glass, with 24/40 ground glass inside interface.

4.2.5

Straight condenser. heat-resistant glass, 300mm, with a 24/40 ground glass interface.

4.2.6

evacuated Interface. heat-resistant glass, bent 105° , with a 24/40 ground glass interface.

4.2.7

receiving cylinder. heat-resistant glass, the volume of 250mL, with a 24/40 ground glass outside interface.

4.2.8

Metal clip. for the 24th ground glass interfaces, stainless steel.