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

GB/T 6533-2012

Replacing GB/T 6533-1986

**Test method for water and sediment in crude oil by the
centrifuge method**

原油中水和沉淀物的测定 离心法

(English Translation)

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Foreword

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

This standard replaces GB/T 6533-1986 "crude water and sediment assays (centrifugation)," compared with the GB/T 6533-1986, the main to technical changes are as follows.

--- The "Moisture must use the GB/T 260" was changed to "Moisture should be GB/T 8929" (see Chapter 1, 1986 Edition of the first paragraph);

--- Added "Normative references" (see Chapter 2);

--- Increasing the formulas relative centrifugal force (see 4.1.6);

--- Increasing the scale of the centrifuge tube for verification of contents (see 4.2);

--- Added "for high viscosity or high crude oil, the need to control the temperature at $71\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$ to give crude wax crystals were dissolved." (See 4.3, 1986, version 2.1.3.);

--- Increased the viscosity of crude oil added to the sample tube method (see 7.2);

--- Added "Quality Assurance and Control" (see Chapter 10);

--- Added "Test Report" (see Chapter 11);

--- The Figure A.1 heading "toluene solubility in water" to "water solubility in toluene." this standard uses redrafted law revision "Determination of water in crude oil and sediment (laboratory method) centrifugation" With ASTM D4007-08.

This standard ASTM D4007-08 technical differences and their reasons are as follows.

--- On normative references, this standard has been adjusted technical differences, in order to adapt our technical conditions, the adjusted situation Focus is reflected in the status of Chapter 2, "Normative references", the specific adjustments are as follows.

- use equivalent to international standards of GB/T 4756 instead ASTM D4057 (see Chapter 6);
- use equivalent to international standards of GB/T 6531 instead ASTM D473 (see Chapter 1);
- Modify with international standards of GB/T 8929 instead ASTM D4006 (see Chapter 1);
- equivalents adoption of international standards SY/T 5317 instead ASTM D4177 (see Chapter 6).

This standard made the following editorial changes.

--- Deleted ASTM D4007-08 informative Appendix X1.

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

This standard was drafted. China Research Institute of Petroleum Corp. petrochemical, Zhoushan Exit Inspection and Quarantine, Daqing Oilfield Engineering Co., Ltd., China National Petroleum Corporation Pipeline Company Pipeline Technology Research Center.

1 Scope

This standard specifies the method for the determination of crude oil by centrifugation in water and sediment content approach.

This standard applies to crude oil.

The standard measurement of crude oil water content is generally lower than the actual water content. When measuring the high precision, the precipitate should be measured GB/T 6531, water determination should be GB/T 8929.

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, eqv ISO 3170. 1988) GB/T 6531 crude oil and fuel oils precipitate assay (extraction method) (GB/T 6531-1986 (91), eqv ISO 3735. 1983) 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)

3 Method Summary

An equal volume of crude oil with water and saturated toluene were fed into a conical centrifuge tube, after centrifugation, the tube is read out in the bottom of the water and sediment volume of.

4.1 Centrifuge

4.1.1

centrifuge rotatable two or more full sample of about 203mm conical centrifuge tube, you can control the speed, the centrifugal tube the end of the relative centrifugal force (rcf) of at least 600 (see 4.1.6).

4.1.2

swivel head, centrifugal and centrifugal cup ring includes a cushion should be well structured in order to be able to withstand the maximum centrifugal force emitted by the source.

Centrifugal, bottom of the cup washer and the upper gasket should firmly support the centrifuge tube. Centrifuges by a sufficiently strong metal shield Fenced to avoid danger when the tube rupture.

4.1.3

The centrifuge should be a heating function, temperature control and stability to avoid unsafe situations occur. Throughout the temperature control during centrifugation $60\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$. Centrifuge thermostat temperature can be controlled within the desired range, and within an environment of flammable pay attention to safety operating.

4.1.4

centrifuges, motors and heaters should comply with the relevant laboratory safety regulations.

4.1.5

centrifuge speed x according to equation (1).

$$x = 1335 \text{ rcfd}$$