

ICS 75.020
CCS E 13



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

GB/T 33294-2025

Replacing GB/T 33294-2016

Testing of deepwater well cement

深水油井水泥试验方法

(English Translation)

Issued on: August 29, 2025

Implemented on: December 1, 2025

Issued by: State Administration for Market Regulation

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document replaces GB/T 33294-2016 "Test Methods for Cement in Deepwater Oil Wells". Compared with GB/T 33294-2016, the only differences are in the structural adjustments.

Aside from integration and editorial changes, the main technical changes are as follows.

- a) The scope has been changed (see Chapter 1, Chapter 1 of the 2016 edition);
 - b) Terms and definitions have been changed (see Chapter 3, Chapter 3 of the 2016 edition);
 - c) The accuracy requirements for thermocouples or thermometers in the sampling rules have been changed (see Chapter 4, Chapter 4 of the 2016 edition);
 - d) Increased temperature requirements for mixing water and cement under unknown conditions (see 5.1);
 - e) The requirements for preparing special cement slurries have been changed, specifying concrete preparation methods (see 5.2, 2016 edition of 5.2);
 - f) Modified the normal pressure consistency in cement stone strength test, cement slurry static filtration loss test, stability test, and rheological and cementitious strength test.
- The mixing time for cement slurry mixed by a thickener and a pressurized thickener (see Chapter 6, 6.4 and 6.5 of the 2016 edition) (8.4.1, 8.4.2, 9.4 and 10.5.1)
- g) The general rules for cement stone strength testing have been revised, adding the influence of free liquid on the accuracy of the test (see 7.1, 2016 edition).
 - h) The requirement for the number of times to tampe during cement slurry filling has been

removed (see 6.7.2.3 in the 2016 edition);

- i) The requirement for the number of test blocks has been increased (see 7.3.2.2);
- j) The compressive strength test content has been revised, and redundant requirements have been removed (see 7.4, 6.8 in the 2016 version);
- k) The thickening time specification has been changed, and requirements for abnormal thickening curves have been added (see 8.3.2, 7.5.4 in the 2016 version);
- l) The simulation method of using an atmospheric pressure thickener for mixing cement slurry in the ground mixing process has been removed (see 7.5.5 in the 2016 version);
- m) The pre-flush fluid in the general rules for downhole fluid compatibility testing has been modified (see 12.1, 11.1 in the 2016 version);
- n) The requirement for gel strength in the solid phase suspension test of mixed fluids has been removed (see 11.3.5 in the 2016 edition).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Petroleum and Natural Gas (SAC/TC355).

1 Scope

This document describes the test methods for oil well cement in deep water or low-temperature well environments.

This document applies to the design and performance evaluation of cement slurries used in cementing operations for deepwater oil and gas wells. The cement slurry is based on (but is not limited to) GB/T 10238 specifies the grade and type of cement for oil wells.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 19139 Oil Well Cement Test Methods

3 Terms and Definitions

The following terms and definitions apply to this document.

deep water

Areas with a water depth greater than 600m.

Mix water

Prepare cement slurry without admixtures using fresh water or seawater.

4 Sampling

Cement slurry testing requires samples consisting of pure cement or cement mix, solid and liquid admixtures, and mixing water. To ensure accurate sampling, the following measures should be taken.

Optimal sampling technique. The temperature of the mixing water, cement, or cement mixture should be measured using a thermocouple or thermometer with an accuracy of $\pm 1^{\circ}\text{C}$, and recorded.

Record the temperature of the test materials. Thermocouples should be calibrated annually, and thermometers should be inspected annually. The sampler and sampling method should conform to...

The provisions of GB/T 19139.

5.1 Preparation of Conventional Cement Slurry

5.1.1

The temperature of cement samples, admixtures and mixing water should not differ from the site temperature by more than $\pm 2^{\circ}\text{C}$.

5.1.2

The temperature of the mixing vessel should be close to the temperature of the mixing water in the cement slurry design. The mixer should be calibrated annually.

5.1.3

If site conditions are unknown, the temperature of the mixing water (including any premixed admixtures) and cement should reach $23^{\circ}\text{C} \pm 1^{\circ}\text{C}$ before mixing.

5.1.4

If it is necessary to prepare large-volume cement slurry, the provisions of GB/T 19139 shall apply.