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**Industrija za predelavo nafte in zemeljskega plina - Cementi in materiali za cementiranje vrtin - 2. del: Preskušanje cementov za vrtine (ISO/DIS 10426-2:2019)**

Petroleum and natural gas industries - Cements and materials for well cementing - Part 2: Testing of well cements (ISO/DIS 10426-2:2019)

Erdöl- und Erdgasindustrie - Zemente und Materialien für die Zementation von Tiefbohrungen - Teil 2: Prüfung von Bohrloch-Zemente (ISO/DIS 10426-2:2019)

Industries du pétrole et du gaz naturel - Ciments et matériaux pour la cimentation des puits - Partie 2: Essais de ciment pour puits (ISO/DIS 10426-2:2019)

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**Ta slovenski standard je istoveten z: prEN ISO 10426-2**

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**ICS:**

75.180.10	Oprema za raziskovanje, vrtanje in odkopavanje	Exploratory, drilling and extraction equipment
91.100.10	Cement. Mavec. Apno. Malta	Cement. Gypsum. Lime. Mortar

**oSIST prEN ISO 10426-2:2019**

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# DRAFT INTERNATIONAL STANDARD

## ISO/DIS 10426-2

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## Petroleum and natural gas industries — Cements and materials for well cementing —

### Part 2: Testing of well cements

*Industries du pétrole et du gaz naturel — Ciments et matériaux pour la cimentation des puits —  
Partie 2: Essais de ciment pour puits*

ICS: 91.100.10; 75.020

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CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
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## ISO/DIS 10426-2:2019(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

The committee responsible for this document is Technical Committee ISO/TC 67 *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 3, *Drilling and completion fluids and well cements*.

This second edition cancels and replaces the first edition (ISO 10426-2:2003), which has been technically revised.

This document supplements API RP 10B-2, 2<sup>nd</sup> edition (2013).

The technical requirements of this part of ISO 10426 and API RP 10B-2 used to be identical. In the meantime, API RP 10B-2 has been technically revised as API RP 10B-2, 2<sup>nd</sup> edition (2013). The purpose of this revision is to bring this part of ISO 10426 up-to-date, by referencing the current edition of API RP 10B-2 and including supplementary content.

The main changes compared to the previous edition of ISO 10426-2 are as follows:

- Standardized well cementing schedules have been omitted, as current practice dictates the use of actual simulations for a specific well.
- Pressure drop calculations for various flow regimes have been omitted, as they are now considered to be well covered in textbooks.
- Permeability tests have been omitted, as they are currently not considered reliable.
- Several tests have been added and most test methods have been updated.

A list of all parts in the ISO 10426 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

The test methods described in this part of ISO 10426 are relevant for the ISO cement Classes A, C, G or H (as given in ISO 10426-1), high-alumina cement, and various types of ductile cement compositions.

In this document, where practical, United States customary (USC) units are included in parentheses for information.

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# Petroleum and natural gas industries — Cements and materials for well cementing —

## Part 2: Testing of well cements

### 1 Scope

This document provides procedures for testing of cement slurries and hardened cement samples at atmospheric and downhole conditions.

This document supplements API RP 10B-2, 2<sup>nd</sup> edition (2013), the requirements of which are applicable with the exceptions specified in this document.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API RP 10B-2, 2<sup>nd</sup> edition (2013), *Recommended Practice for Testing Well Cements*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in API RP 10B-2, 2<sup>nd</sup> edition (2013) apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 4 Supplements to API RP 10B-2, 2<sup>nd</sup> edition (2013)

#### 4.1 General requirements

The requirements specified in API RP 10B-2, 2<sup>nd</sup> edition (2013) shall apply, with the exceptions specified in 4.2 to 4.5.

#### 4.2 Well-simulation compressive-strength tests

The reference specified in API RP 10B-2, 2<sup>nd</sup> edition (2013), Clause 7 shall apply with the following exceptions:

Delete the last sentence in 7.3.1, i.e. “Glass plates may be used but are not recommended for tests above 110 °C (230 °F) because of the risk of silica replacement”.

In 7.3.4 under b), replace “–18 °C to 104 °C (0 °F to 220 °F)” by “–18 °C to at least 104 °C (0 °F to at least 220 °F)”.

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In 7.4.5, first paragraph, first sentence, add “pre-heated” before “curing vessel” and delete “(normally  $(27 \pm 3) ^\circ\text{C}$  [ $(80 \pm 5) ^\circ\text{F}$ ])”, and replace “, heat and pressure” by “. Heat and pressure”.

In 7.4.5, the second paragraph, second sentence, replace both occurrences of “ $90 ^\circ\text{C}$  ( $194 ^\circ\text{F}$ )” by “ $88 ^\circ\text{C}$  ( $190 ^\circ\text{F}$ )”.

In Table 3, at the end of Clause 7, in the rows for temperature gradients 1.7 and 1.9, express the temperature ramps in the second column in  $^\circ\text{F}/\text{min}$  instead of  $^\circ\text{C}/\text{min}$ .

**4.3 Non-destructive sonic determination of compressive strength of cement**

The reference specified in API RP 10B-2, 2<sup>nd</sup> edition (2013), 8.8.1 shall apply with the following exception:

In Formula (34), replace the coefficient “3.044” by “3.046”.

**4.4 Static fluid loss tests**

The reference specified in API RP 10B-2, 2<sup>nd</sup> edition (2013), 10.2.1 shall apply with the following exception:

In 10.2.1.1, second paragraph, first sentence, delete “a back pressure receiver or”.

**4.5 Determination of rheological properties and gel strength using a rotational viscometer**

The reference specified in API RP 10B-2, 2<sup>nd</sup> edition (2013), Clause 11 shall apply with the following exceptions:

In 11.4.10, third sentence, replace “speed is 300 r/min” by “shear rate is 511 s<sup>-1</sup> (this corresponds to 300 rpm with the R1B1 rotor/bob combination and 600 rpm with the R1B5 rotor/bob combination)”.

In 11.4.10, last sentence, replace “speed is 300 r/min” by “shear rate is 511 s<sup>-1</sup>”.

In 11.6.3.4, second sentence after the explanation of the symbols used in Formula (57), replace “When the yield stress equals the yield point, the flow behaviour index becomes 1 and the model reduces to the Bingham plastic model” by “When the flow behaviour index is equal to one, the model reduces to the Bingham plastic model.”