

### SLOVENSKI STANDARD SIST EN ISO 15681-2:2019

01-maj-2019

Nadomešča:

**SIST EN ISO 15681-2:2005** 

Kakovost vode - Določevanje ortofosfata in celotnega fosforja s pretočno analizo (FIA in CFA) - 2. del: Metoda s kontinuirno pretočno analizo (CFA) (ISO 15681-2:2018)

Water quality - Determination of orthophosphate and total phosphorus contents by flow analysis (FIA and CFA) - Part 2: Method by continuous flow analysis (CFA) (ISO 15681-2:2018)

iTeh STANDARD PREVIEW

Wasserbeschaffenheit - Bestimmung von Orthophosphat und Gesamtphosphor mittels Fließanalytik (FIA und CFA) - Teil 2: Verfahren mittels kontinuierlicher Durchflussanalyse (CFA) (ISO 15681-2:2018) SIST EN ISO 15681-2:2019 https://standards.iteh.ai/catalog/standards/sist/2b2d09cd-4cb9-479c-a474-

Qualité de l'eau - Dosage des orthophosphates et du phosphore total par analyse en flux (FIA et CFA) - Partie 2: Méthode par analyse en flux continu (CFA) (ISO 15681-2:2018)

3dcd41e51b9c/sist-en-iso-15681-2-2019

Ta slovenski standard je istoveten z: EN ISO 15681-2:2018

ICS:

13.060.50 Preiskava vode na kemične Examination of water for

snovi chemical substances

SIST EN ISO 15681-2:2019 en,fr,de

## iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN ISO 15681-2:2019</u> https://standards.iteh.ai/catalog/standards/sist/2b2d09cd-4cb9-479c-a474-3dcd41e51b9c/sist-en-iso-15681-2-2019

## EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN ISO 15681-2

December 2018

ICS 13.060.50

Supersedes EN ISO 15681-2:2004

### **English Version**

Water quality - Determination of orthophosphate and total phosphorus contents by flow analysis (FIA and CFA) - Part 2: Method by continuous flow analysis (CFA) (ISO 15681-2:2018)

Qualité de l'eau - Dosage des orthophosphates et du phosphore total par analyse en flux (FIA et CFA) -Partie 2: Méthode par analyse en flux continu (CFA) (ISO 15681-2:2018) Wasserbeschaffenheit - Bestimmung von Orthophosphat und Gesamtphosphor mittels Fließanalytik (FIA und CFA) - Teil 2: Verfahren mittels kontinuierlicher Durchflussanalyse (CFA) (ISO 15681-2:2018)

This European Standard was approved by CEN on 10 August 2018.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French) German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions because its 1568 1-2-2019

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword	3

# iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 15681-2:2019 https://standards.iteh.ai/catalog/standards/sist/2b2d09cd-4cb9-479c-a474-3dcd41e51b9c/sist-en-iso-15681-2-2019

### **European foreword**

This document (EN ISO 15681-2:2018) has been prepared by Technical Committee ISO/TC 147 "Water quality" in collaboration with Technical Committee CEN/TC 230 "Water analysis" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 15681-2:2004.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### iTeh STANDARD PREVIEW Endorsement notice (standards.iteh.ai)

The text of ISO 15681-2:2018 has been approved by CEN as EN ISO 15681-2:2018 without any modification.

https://standards.iteh.ai/catalog/standards/sist/2b2d09cd-4cb9-479c-a474-3dcd41e51b9c/sist-en-iso-15681-2-2019

## iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN ISO 15681-2:2019</u> https://standards.iteh.ai/catalog/standards/sist/2b2d09cd-4cb9-479c-a474-3dcd41e51b9c/sist-en-iso-15681-2-2019

# INTERNATIONAL STANDARD

ISO 15681-2

Second edition 2018-10

Water quality — Determination of orthophosphate and total phosphorus contents by flow analysis (FIA and CFA) —

Part 2:

iTeh STCE AND CONTINUOUS flow analysis

(stàndárds.iteh.ai)

Qualité de l'eau — Dosage des orthophosphates et du phosphore total par analyse en flux (FIA) et CFA) —

https://standards.iteh.apartalesz.twethlodet plandalyse en flux continu (CFA)



# iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN ISO 15681-2:2019</u> https://standards.iteh.ai/catalog/standards/sist/2b2d09cd-4cb9-479c-a474-3dcd41e51b9c/sist-en-iso-15681-2-2019



#### COPYRIGHT PROTECTED DOCUMENT

#### © ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office 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 Website: www.iso.org

Published in Switzerland

Con	tents	Page
Forew	vord	iv
Intro	duction	<b>v</b>
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Interferences 4.1 General interferences 4.2 Interferences in the determination of total-P	2
5	Principle 5.1 Determination of orthophosphate 5.2 Total phosphorus with manual digestion 5.3 Total phosphorus with integral UV digestion and hydrolysis	3 3
6	Reagents	3
7	Apparatus	7
8	Sampling and sample preparation	9
9	Procedure  9.1 Preparation for analysis 9.2 Instrument performance check 9.3 Reagent blank check 9.4 Calibration 9.5 Check of UV digestion and hydrolysis for total P determination (Figures A.2 and A.3) 9.6 Measurement 9.7 Closing down the systemtalog/standards/sist/2b2d09cd-4cb9-479c-a474-  3dcd41e51b9c/sist-en-iso-15681-2-2019	9 9 10 10
10	Calculation of results	
11	Expression of results	11
12	Test report	11
Annex	x A (informative) Examples of a CFA system	12
Annex	x B (informative) Performance data	15
Annex	x C (informative) Determination of orthophosphate-P and total-P by CFA and tin(II) chloride reduction	17
Biblio	ography	18

#### **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 <a href="www.iso.org/directives">www.iso.org/directives</a>).

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 <a href="https://www.iso.org/patents">www.iso.org/patents</a>).

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

For an explanation of the voluntary nature of standards, 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 <a href="https://www.iso.org/iso/foreword.html">www.iso.org/iso/foreword.html</a>. (standards.iteh.ai)

This document was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*. SIST EN ISO 15681-2:2019
https://standards.itch.ai/catalog/standards/sist/2b2d09cd-4cb9-479c-a474-

This second edition cancels and replaces the first edition (ISO 15681-2:2003), which has been technically revised. The main changes compared to the previous edition are as follows:

- a) the reagents have been adjusted to decrease the pH to enhance the colour reaction;
- b) the figures in Annex A have been revised.

A list of all parts in the ISO 15681 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 <a href="https://www.iso.org/members.html">www.iso.org/members.html</a>.

### Introduction

Methods of determining water quality using flow analysis automated wet chemical procedures are particularly suitable for the processing of many analytes in water in large sample series at a high analysis frequency.

Analysis can be performed by flow injection analysis (FIA)[6][8] or continuous flow analysis (CFA)[9]. Both methods share the feature of an automatic dosage of the sample into a flow system (manifold) where the analyte in the sample reacts with the reagent solutions on its way through the manifold. The sample preparation may be integrated in the manifold. The amount of reaction product is measured in a flow detector (e.g. flow photometer). This document describes the CFA method.

The user should be aware that particular problems could require the specification of additional marginal conditions.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN ISO 15681-2:2019</u> https://standards.iteh.ai/catalog/standards/sist/2b2d09cd-4cb9-479c-a474-3dcd41e51b9c/sist-en-iso-15681-2-2019

## iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 15681-2:2019 https://standards.iteh.ai/catalog/standards/sist/2b2d09cd-4cb9-479c-a474-3dcd41e51b9c/sist-en-iso-15681-2-2019