



SLOVENSKI STANDARD SIST EN ISO 5815-1:2019

01-november-2019

Nadomešča:

SIST EN 1899-1:2000

SIST EN 1899-2:2000

Kakovost vode - Določevanje biokemijske potrebe po kisiku po n dneh (BPKn) - 1. del: Metoda razredčevanja in cepljenja z dodatkom alitiosečnine (ISO 5815-1:2019)

Water quality - Determination of biochemical oxygen demand after n days (BODn) - Part 1: Dilution and seeding method with allylthiourea addition (ISO 5815-1:2019)

iTeh STANDARD PREVIEW

Wasserbeschaffenheit - Bestimmung des biochemischen Sauerstoffbedarfs nach n Tagen (BSBn) - Teil 1: Verdünnungs- und Impfverfahren mit Zugabe von Allylthioharnstoff (ISO 5815-1:2019)

[SIST EN ISO 5815-1:2019](https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ede1202157b2/iso-5815-1-2019)

[https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-](https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ede1202157b2/iso-5815-1-2019)

Qualité de l'eau - Détermination de la demande biochimique en oxygène après n jours (DBOn) - Partie 1: Méthode par dilution et ensemencement avec apport d'allylthiourée (ISO 5815-1:2019)

Ta slovenski standard je istoveten z: EN ISO 5815-1:2019

ICS:

13.060.50	Preiskava vode na kemične snovi	Examination of water for chemical substances
-----------	---------------------------------	--

SIST EN ISO 5815-1:2019

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 5815-1:2019

<https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ed6e9ff9377b/sist-en-iso-5815-1-2019>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 5815-1

September 2019

ICS 13.060.50

Supersedes EN 1899-2:1998

English Version

Water quality - Determination of biochemical oxygen demand after n days (BOD_n) - Part 1: Dilution and seeding method with allylthiourea addition (ISO 5815-1:2019)

Qualité de l'eau - Détermination de la demande biochimique en oxygène après n jours (DBO_n) - Partie 1: Méthode par dilution et ensemencement avec apport d'allylthiourée (ISO 5815-1:2019)

Wasserbeschaffenheit - Bestimmung des biochemischen Sauerstoffbedarfs nach n Tagen (BSB_n) - Teil 1: Verdünnungs- und Impfverfahren mit Zugabe von Allylthioharnstoff (ISO 5815-1:2019)

This European Standard was approved by CEN on 26 July 2019.

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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, 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 5815-1:2019](https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ed6e9ff9377b/sist-en-iso-5815-1-2019)
[https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-
ed6e9ff9377b/sist-en-iso-5815-1-2019](https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ed6e9ff9377b/sist-en-iso-5815-1-2019)

European foreword

This document (EN ISO 5815-1:2019) 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 March 2020, and conflicting national standards shall be withdrawn at the latest by March 2020.

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 1899-2:1998.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

The text of ISO 5815-1:2019 has been approved by CEN as EN ISO 5815-1:2019 without any modification.

[SIST EN ISO 5815-1:2019
https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ed6e9ff9377b/sist-en-iso-5815-1-2019](https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ed6e9ff9377b/sist-en-iso-5815-1-2019)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 5815-1:2019](https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ed6e9ff9377b/sist-en-iso-5815-1-2019)

<https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ed6e9ff9377b/sist-en-iso-5815-1-2019>

INTERNATIONAL
STANDARDISO
5815-1Second edition
2019-07

**Water quality — Determination of
biochemical oxygen demand after n
days (BOD _{n}) —****Part 1:
Dilution and seeding method with
allylthiourea addition**

iTeh STANDARD PREVIEW

*Qualité de l'eau — Détermination de la demande biochimique en
oxygène après n jours (DBO _{n}) —**Partie 1: Méthode par dilution et ensemencement avec apport
d'allylthiourée*

<https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ed6e9ff9377b/sist-en-iso-5815-1-2019>

Reference number
ISO 5815-1:2019(E)

© ISO 2019

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 5815-1:2019

<https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ed6e9ff9377b/sist-en-iso-5815-1-2019>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2019

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

Contents

	Page
Foreword	iv
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Principle	3
5 Reagents	3
6 Apparatus	6
7 Sampling and preservation	6
8 Interferences	7
8.1 General.....	7
8.2 Presence of free and/or combined chlorine.....	7
8.3 Presence of algae.....	7
8.4 Presence of peroxides and peroxide compounds.....	8
9 Procedure	8
9.1 General.....	8
9.2 Pretreatment.....	8
9.2.1 Neutralization of the sample.....	8
9.2.2 Homogenization.....	9
9.3 Preparation of test solutions.....	9
9.4 Calculation of dilutions.....	9
9.4.1 Empirical determination of the dilutions.....	9
9.4.2 Determination of dilutions via the factors R of the TOC, the permanganate index or the COD.....	10
9.4.3 Calculation of dilution stages via the COD.....	11
9.5 Blank value determination.....	11
9.6 Determination of dissolved oxygen.....	11
9.6.1 Measurement of dissolved oxygen using iodometric method (in accordance with ISO 5813).....	11
9.6.2 Measurement of dissolved oxygen using probes (in accordance with ISO 5814 or ISO 17289).....	12
9.7 Control analysis.....	12
10 Calculation and indication of the results	13
10.1 Examination of test solutions for valid oxygen consumption during test.....	13
10.2 Calculation of biochemical oxygen demand after n days (BOD_n).....	13
10.3 Validity criteria.....	14
11 Test report	14
Annex A (normative) Influence of incubation periods and temperatures	15
Annex B (informative) Multitestng	16
Annex C (informative) Direct seeding of the analysis batches	19
Annex D (informative) Performance data	20
Bibliography	22

ISO 5815-1:2019(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).

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).

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 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 5, *Biological methods*.

This second edition cancels and replaces the first edition (ISO 5815-1:2003), which has been technically revised. The main changes compared to the previous edition are as follows:

- change of working range: 1 mg/l instead of 3 mg/l as lower limit;
- changes in test procedure;
- in 5.2, option to check seeding water suitability in advance with a CGA control analysis batch;
- in 5.3.2, phosphate buffer solution pH-value: requirement for preparation of a new solution if the pH value is out of the range pH 7 and pH 8;
- in 5.5, range for oxygen consumption of seeded dilution water 0,2 mg/l to 1,5 mg/l instead of upper limit 1,5 mg/l;
- in 5.9, allowable range BOD₅ of the CGA control solution changed to (198 ± 40) mg/l and BOD₇ (206 ± 40) mg/l;
- in 6.5, electrochemical probe option to measure the dissolved oxygen concentration added;
- in 8.4, interferences: subclause on presence of peroxides and peroxide compounds added;
- in 9.4, options to determinate the dilutions elaborated;
- in 9.7, control analysis: elaborated description of procedure;
- in 10.3, "approval of results/validity criteria" added;
- Annex A: title changed and "normative" instead of "informative"
- Annex C "Direct seeding of the analysis batches" added;

— new [Annex D](#) "Performance data" included.

A list of all parts in the ISO 5815 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.

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 5815-1:2019

<https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ed6e9ff9377b/sist-en-iso-5815-1-2019>

ISO 5815-1:2019(E)**Introduction**

The incubation time specified in this document is 5 d or 7 d. The latter corresponds to the practice in several Nordic countries. [Annex A](#) describes an incubation time of (2 + 5) d.

ISO 5815-1 specifies the determination of the biochemical oxygen demand (BOD) of waters with an expected BOD in the range 1 mg/l to 6 000 mg/l using the dilution method. A lower limit of working range may result from validation data in the laboratory. For samples with an expected low BOD in the range of 0,5 mg/l to 6 mg/l ISO 5815-2 provides the option of the determination of the (BOD) of waters using undiluted samples.

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

[SIST EN ISO 5815-1:2019](#)

<https://standards.iteh.ai/catalog/standards/sist/962c4cb3-069a-4f33-8b91-ed6e9ff9377b/sist-en-iso-5815-1-2019>