

This is a preview of "ISO 5815-1:2019". [Click here to purchase the full version from the ANSI store.](#)

Second edition
2019-07

Water quality — Determination of biochemical oxygen demand after n days (BOD_n) —

Part 1: Dilution and seeding method with allylthiourea addition

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



Reference number
ISO 5815-1:2019(E)

© ISO 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

This is a preview of "ISO 5815-1:2019". Click here to purchase the full version from the ANSI store.

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 <i>R</i> 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 <i>n</i> 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

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;

This is a preview of "ISO 5815-1:2019". [Click here to purchase the full version from the ANSI store.](#)

— 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.

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.