

This is a preview of "BS EN ISO 20236:2021". [Click here to purchase the full version from the ANSI store.](#)



BSI Standards Publication

**Water quality — Determination of total organic carbon (TOC), dissolved organic carbon (DOC), total bound nitrogen (TN<sub>b</sub>) and dissolved bound nitrogen (DN<sub>b</sub>) after high temperature catalytic oxidative combustion**

---

This is a preview of "BS EN ISO 20236:2021". [Click here to purchase the full version from the ANSI store.](#)

## National foreword

This British Standard is the UK implementation of EN ISO 20236:2021. It is identical to ISO 20236:2018. It supersedes BS ISO 20236:2018, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EH/3/2, Physical chemical and biochemical methods.

A list of organizations represented on this committee can be obtained on request to its committee manager.

### Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2022  
Published by BSI Standards Limited 2022

ISBN 978 0 539 17777 0

ICS 13.060.50

### Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 December 2021.

### Amendments/corrigenda issued since publication

Date	Text affected
March 2022	This corrigendum renumbers BS ISO 20236:2018 as BS EN ISO 20236:2021

This is a preview of "BS EN ISO 20236:2021". [Click here to purchase the full version from the ANSI store.](#)

EUROPÄISCHE NORM

November 2021

ICS 13.060.50

Supersedes EN 12260:2003

English Version

## Water quality - Determination of total organic carbon (TOC), dissolved organic carbon (DOC), total bound nitrogen (TN<sub>b</sub>) and dissolved bound nitrogen (DN<sub>b</sub>) after high temperature catalytic oxidative combustion (ISO 20236:2018)

Qualité de l'eau - Dosage du carbone organique total (COT), carbone organique (COD), azote lié total (TN<sub>b</sub>) et azote lié dissous (DN<sub>b</sub>) après combustion oxydatif catalytique à haute température (ISO 20236:2018)

Wasserbeschaffenheit - Bestimmung des gesamten organischen Kohlenstoffs (TOC), des gelösten organischen Kohlenstoffs (DOC), des gebundenen Stickstoffs (TN<sub>b</sub>) und des gelösten gebundenen Stickstoffs (DN<sub>b</sub>) nach katalytischer oxidativer Hochtemperaturverbrennung (ISO 20236:2018)

This European Standard was approved by CEN on 15 November 2021.

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**

This is a preview of "BS EN ISO 20236:2021". [Click here to purchase the full version from the ANSI store.](#)

<b>Contents</b>	<b>Page</b>
<b>European foreword.....</b>	<b>3</b>
<b>Endorsement notice .....</b>	<b>3</b>

This is a preview of "BS EN ISO 20236:2021". [Click here to purchase the full version from the ANSI store.](#)

## European foreword

The text of ISO 20236:2018 has been prepared by Technical Committee ISO/TC 147 "Water quality" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 20236:2021 by 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 May 2022, and conflicting national standards shall be withdrawn at the latest by May 2022.

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 12260:2003.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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.

## Endorsement notice

The text of ISO 20236:2018 has been approved by CEN as EN ISO 20236:2021 without any modification.

This is a preview of "BS EN ISO 20236:2021". [Click here to purchase the full version from the ANSI store.](#)

This is a preview of "BS EN ISO 20236:2021". [Click here to purchase the full version from the ANSI store.](#)

First edition  
2018-09

---

---

## **Water quality — Determination of total organic carbon (TOC), dissolved organic carbon (DOC), total bound nitrogen (TN<sub>b</sub>) and dissolved bound nitrogen (DN<sub>b</sub>) after high temperature catalytic oxidative combustion**

*Qualité de l'eau — Dosage du carbone organique total (COT), carbone organique (COD), azote lié total (TN<sub>b</sub>) et azote lié dissous (DN<sub>b</sub>) après combustion oxydatif catalytique à haute température*



Reference number  
ISO 20236:2018(E)

© ISO 2018

This is a preview of "BS EN ISO 20236:2021". [Click here to purchase the full version from the ANSI store.](#)



## **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](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland



This is a preview of "BS EN ISO 20236:2021". [Click here to purchase the full version from the ANSI store.](#)

## Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Principle</b> .....	<b>2</b>
<b>5 Interferences</b> .....	<b>3</b>
5.1 General.....	3
5.2 TOC or DOC.....	3
5.3 TN <sub>b</sub> or DN <sub>b</sub> .....	4
<b>6 Reagents</b> .....	<b>4</b>
<b>7 Apparatus</b> .....	<b>6</b>
<b>8 Quality requirements for the analytical system</b> .....	<b>8</b>
8.1 System check.....	8
8.2 Recovery and variation of replicate determinations for particle processing control for TOC and TN <sub>b</sub> .....	8
<b>9 Sampling and sample preparation</b> .....	<b>8</b>
<b>10 Procedure</b> .....	<b>9</b>
10.1 General.....	9
10.2 Calibration.....	9
10.3 Validity check of the calibration function.....	9
10.4 Measurement.....	9
10.4.1 General.....	9
10.4.2 Determination.....	10
<b>11 Evaluation</b> .....	<b>11</b>
<b>12 Expression of results</b> .....	<b>11</b>
<b>13 Test report</b> .....	<b>11</b>
<b>Annex A (normative) Determination of TOC and TIC applying the difference method</b> .....	<b>12</b>
<b>Annex B (informative) Performance data for TOC or DOC and TN<sub>b</sub> or DN<sub>b</sub></b> .....	<b>15</b>
<b>Annex C (informative) Alternative detection techniques for TN<sub>b</sub> and DN<sub>b</sub></b> .....	<b>17</b>
<b>Bibliography</b> .....	<b>18</b>

This is a preview of "BS EN ISO 20236:2021". Click here to purchase the full version from the ANSI store.

## 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 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 [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*.

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).

This is a preview of "BS EN ISO 20236:2021". [Click here to purchase the full version from the ANSI store.](#)

## Introduction

Total organic carbon (TOC), dissolved organic carbon (DOC), total bound nitrogen (TN<sub>b</sub>) and dissolved bound nitrogen (DN<sub>b</sub>) are an analytical convention, the respective result of which is a parameter used for water quality control purposes. These parameters represent the sum of organically bound carbon as well as the sum of inorganic and organic nitrogen (but not nitrogen gas), which can be dissolved in water or bonded to dissolved or suspended matter under specified conditions and, if the sample is not filtered, includes that associated with suspended matter. It does not give information on the nature of the substances.

Details of an interlaboratory trial on the performance data for TOC or DOC and TN<sub>b</sub> or DN<sub>b</sub> are given in [Annex B](#).

This is a preview of "BS EN ISO 20236:2021". [Click here to purchase the full version from the ANSI store.](#)

This is a preview of "BS EN ISO 20236:2021". Click here to purchase the full version from the ANSI store.

# Water quality — Determination of total organic carbon (TOC), dissolved organic carbon (DOC), total bound nitrogen (TN<sub>b</sub>) and dissolved bound nitrogen (DN<sub>b</sub>) after high temperature catalytic oxidative combustion

**WARNING** — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices.

**IMPORTANT** — It is absolutely essential that tests conducted in accordance with this document be carried out by suitably qualified staff.

## 1 Scope

This document specifies a method for the determination of total organic carbon (TOC), dissolved organic carbon (DOC), total bound nitrogen (TN<sub>b</sub>) and dissolved bound nitrogen (DN<sub>b</sub>) in the form of free ammonia, ammonium, nitrite, nitrate and organic compounds capable of conversion to nitrogen oxides under the conditions described. The procedure is carried out instrumentally.

**NOTE** Generally the method can be applied for the determination of total carbon (TC) and total inorganic carbon (TIC), see [Annex A](#).

The method is applicable to water samples (e.g. drinking water, raw water, ground water, surface water, sea water, waste water, leachates).

The method allows a determination of TOC and DOC  $\geq 1$  mg/l and TN<sub>b</sub> and DN<sub>b</sub>  $\geq 1$  mg/l. The upper working range is restricted by instrument-dependent conditions (e.g. injection volume). Higher concentrations can be determined after appropriate dilution of the sample.

For samples containing volatile organic compounds (e.g. industrial waste water), the difference method is used, see [Annex A](#).

Cyanide, cyanate and particles of elemental carbon (soot), when present in the sample, can be determined together with the organic carbon.

The method is not appropriate for the determination of volatile, or purgeable, organic carbon under the conditions described by this method.

Dissolved nitrogen gas (N<sub>2</sub>) is not determined.

## 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.

ISO 8466-1, *Water quality — Calibration and evaluation of analytical methods and estimation of performance characteristics — Part 1: Statistical evaluation of the linear calibration function*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.