
Kakovost vode - Določevanje celotnega organskega ogljika (TOC), raztopljenega organskega ogljika (DOC), celotnega vezanega dušika (TNb) in raztopljenega vezanega dušika (DNb) po katalitskem sežigu pri visoki temperaturi (ISO/DIS 20236:2023)

Water quality - Determination of total organic carbon (TOC), dissolved organic carbon (DOC), total bound nitrogen (TNb) and dissolved bound nitrogen (DNb) after high temperature catalytic oxidative combustion (ISO/DIS 20236:2023)

Wasserbeschaffenheit - Bestimmung des gesamten organischen Kohlenstoffs (TOC), des gelösten organischen Kohlenstoffs (DOC), des gebundenen Stickstoffs (TNb) und des gelösten gebundenen Stickstoffs (DNb) nach katalytischer oxidativer Hochtemperaturverbrennung (ISO/DIS 20236:2023)

Qualité de l'eau - Dosage du carbone organique total (COT), carbone organique dissous (COD), azote lié total (TNb) et azote lié dissous (DNb) après combustion catalytique oxydante à haute température (ISO/DIS 20236:2023)

Ta slovenski standard je istoveten z: prEN ISO 20236

ICS:

13.060.50	Preiskava vode na kemične snovi	Examination of water for chemical substances
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Water quality — Determination of total organic carbon (TOC), dissolved organic carbon (DOC), total bound nitrogen (TN_b) and dissolved bound nitrogen (DN_b) after high temperature catalytic oxidative combustion

Qualité de l'eau — Dosage du carbone organique total (COT), carbone organique dissous (COD), azote lié total (TN_b) et azote lié dissous (DN_b) après combustion catalytique oxydante à haute température

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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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).

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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.

This document was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 230, *Water analysis*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 20236:2018), which has been technically revised.

The main changes are as follows:

- no need to report results with a HT prefix/suffix to indicate the High Temperature method, removal of indices;
- updated list of normative references;
- update of the application insertion of [Clause A.6](#) Test Report in order to reference of the difference method with the results report, obligatory;
- addition of widening of the method to apply single component standard calibration solutions e.g. based on ammonium sulfate or potassium nitrate, too;
- the general widening of the method to determine determination of concentrations <1 mg/l of C and N is possible but dependent on instrument conditions chosen and applying appropriate calibration;
- editorially revised.

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

Total organic carbon (TOC), dissolved organic carbon (DOC), total bound nitrogen (TN_b) and dissolved bound nitrogen (DN_b) 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. The abbreviations TOC, DOC, TN_b, DN_b, TC and TIC refer to values determined by the high temperature method.

Details of a validation interlaboratory trial with the performance data for TOC or DOC and TN_b or DN_b, all using ISO 20236 with the high temperature method, are given in [Annex B](#).

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Water quality — Determination of total organic carbon (TOC), dissolved organic carbon (DOC), total bound nitrogen (TN_b) and dissolved bound nitrogen (DN_b) 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_b) and dissolved bound nitrogen (DN_b) 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 by automated analysis.

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 ≥ 1 mg/l and TN_b and DN_b ≥ 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. The determination of concentrations < 1 mg/l is dependent on instrument conditions applying appropriate calibration.

For samples containing volatile organic compounds (e.g. industrial waste water), the application of the difference method could be considered, see [Annex A](#).

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

Dissolved nitrogen gas (N₂) 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 — Part 1: Linear calibration function*

3 Terms and definitions

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

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

— ISO Online browsing platform: available at <https://www.iso.org/obp>

ISO/DIS 20236:2023(E)

— IEC Electropedia: available at <https://www.electropedia.org/>

3.1**total carbon****TC**

sum of organically and inorganically bound carbon present in water, including elemental carbon

3.2**term**

text of the definition

3.3**total inorganic carbon****TIC**

sum of inorganic carbon present in water measured under the conditions of this method

Note 1 to entry: TIC is measured as CO₂ originating only from carbonates, hydrogen carbonates and dissolved carbon dioxide.

3.4**total organic carbon****TOC**

sum of organically bound carbon present in water, bonded to dissolved or suspended matter, including cyanate, thiocyanate and elemental carbon measured under the conditions of this method

Note 1 to entry: Volatile organic carbon cannot be guaranteed to be determined by the method.

Note 2 to entry: Generally, TOC includes organic compounds in water that cannot be purged under the conditions of this method, also known as non-purgeable organic carbon (NPOC).

3.5**dissolved organic carbon****DOC**

sum of organically bound carbon present in water originating from compounds passing through a membrane filter of 0,45 µm pore size, including cyanate and thiocyanate measured under the conditions of this method

3.6 <https://standards.iteh.ai/catalog/standards/sist/c62581a2-e8fe-4e16-99ba-9b839431837d/osist-pren-iso-20236-2023>**total bound nitrogen****TN_b**

sum of organically bound and inorganically bound nitrogen present in water or suspended matter measured under the conditions of this method

3.7**dissolved bound nitrogen****DN_b**

sum of organically and inorganically bound nitrogen present in water originating from compounds passing through a 0,45 µm membrane filter measured under the conditions of this method

3.8**Chemiluminescence**

emission of light by an atom or molecule that is in an excited state as the result of a chemical reaction

3.9**reporting limit**

specific concentration at or above the limit of quantification that is reported to the client with a certain degree of confidence. It is often defined on a project-specific basis