
**Water quality — Determination
of total organic carbon (TOC),
dissolved organic carbon (DOC), total
bound nitrogen (TN_b), dissolved
bound nitrogen (DN_b), total bound
phosphorus (TP_b) and dissolved
bound phosphorus (DP_b) after wet
chemical catalysed ozone hydroxyl
radical oxidation (COHR)**

Qualité de l'eau — Détermination du carbone organique total (COT), du carbone organique dissous (COD), de l'azote total lié (TN_b), de l'azote dissous lié (DN_b), du phosphore total lié et du phosphore dissous lié (DP_b) après oxydation par l'ozone avec des radicaux hydroxyles et catalyseur en milieux aqueux (COHR)



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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*.

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), dissolved bound nitrogen (DN_b), total bound phosphorus (TP_b) and dissolved bound phosphorus (DP_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, the sum of inorganic and organic nitrogen, and the sum of inorganic and organic phosphorus. These parameters can be dissolved in water or bonded to dissolved or suspended matter under specified conditions. If the sample is not filtered the parameter is associated with suspended matter. This document does not give information on the nature of the substances.

Water quality — Determination of total organic carbon (TOC), dissolved organic carbon (DOC), total bound nitrogen (TN_b), dissolved bound nitrogen (DN_b), total bound phosphorus (TP_b) and dissolved bound phosphorus (DP_b) after wet chemical catalysed ozone hydroxyl radical oxidation (COHR)

WARNING — Persons using this document should be familiar with normal laboratory practices. This document does not purport to address all 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 essential that tests conducted in accordance with this document be carried out by suitably qualified staff.

1 Scope

This document specifies a multi-parameter method for the determination of total organic carbon (TOC), total nitrogen (TN_b) and total phosphorus (TP) in drinking water, raw water, ground water, surface water, sea water, saline water, process water, domestic and industrial wastewater, after a chemical oxidation process. It is applicable to both dissolved and bound suspended materials.

The method allows for determination of TOC, TN and TP. The lower and upper working ranges for these parameters are dependent upon instrument conditions (for example sample volume, reaction chemistry amounts) and can be adjusted for a wider range. Typical measurement ranges are shown in [Figures C.1](#) to [C.3](#).

The analysis procedure is carried out instrumentally by a single oxidation process.

Dissolved nitrogen gas is not included in the TN_b measurement in this method. When present in the sample, elemental carbon, cyanate and thiocyanate will be included in the TOC result.

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 5725-2, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

ISO 8245, *Water quality — Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC)*

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.