
**Water quality — Determination
of dissolved anions by liquid
chromatography of ions —**

**Part 1:
Determination of bromide, chloride,
fluoride, nitrate, nitrite, phosphate
and sulfate**

*Qualité de l'eau — Dosage des anions dissous par chromatographie
des ions en phase liquide —*

*Partie 1: Dosage du bromure, chlorure, fluorure, nitrate, nitrite,
phosphate et sulfate*



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Contents

Page

Foreword.....	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Interferences	2
4 Principle	2
5 Reagents	2
6 Apparatus	4
7 Sampling and sample pre-treatment.....	7
8 Procedure	8
9 Calculation.....	9
10 Expression of results	9
11 Test report	9
Annex A (informative) Performance data.....	10
Annex B (informative) Checked interferences	14
Bibliography	15

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 10304-1 was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*.

This second edition of ISO 10304-1 cancels and replaces ISO 10304-1:1992 and ISO 10304-2:1995, which have been technically revised.

ISO 10304 consists of the following parts, under the general title *Water quality — Determination of dissolved anions by liquid chromatography of ions*:

- *Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate*
- *Part 3: Determination of chromate, iodide, sulfite, thiocyanate and thiosulfate*
- *Part 4: Determination of chlorate, chloride and chlorite in water with low contamination*

Introduction

The user should be aware that particular problems could require the specification of additional conditions not provided for in this part of ISO 10304.

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Water quality — Determination of dissolved anions by liquid chromatography of ions —

Part 1:

Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate

WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This standard 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 and to ensure compliance with any national regulatory conditions.

IMPORTANT — It is absolutely essential that tests conducted according to this International Standard be carried out by suitably trained staff.

1 Scope

This part of ISO 10304 specifies a method for the determination of dissolved bromide, chloride, fluoride, nitrate, nitrite, orthophosphate and sulfate in water, e.g. drinking water, ground water, surface water, waste water, leachates and marine water by liquid chromatography of ions.

The lower limit of application is $\geq 0,05$ mg/l for bromide and for nitrite, and $\geq 0,1$ mg/l for chloride, fluoride, nitrate, orthophosphate, and sulfate. The lower limit of application depends on the matrix and the interferences encountered.

The working range may be expanded to lower concentrations (e.g. $\geq 0,01$ mg/l) if an appropriate pre-treatment of the sample (e.g. conditions for trace analyses, pre-concentration technique) is applied, and/or if an ultraviolet (UV) detector (for bromide, nitrate and nitrite) is used.

2 Normative references

The following referenced documents are indispensable for the application 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 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 5667-3, *Water quality — Sampling — Part 3: Guidance on the preservation and handling of water samples*

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*

ISO 8466-2, *Water quality — Calibration and evaluation of analytical methods and estimation of performance characteristics — Part 2: Calibration strategy for non-linear second-order calibration functions*