

<b>STN</b>	<b>Kvalita vody Použitie hmotnostnej spektrometrie s indukčne viazanou plazmou (ICP-MS) Časť 1: Všeobecné pokyny (ISO 17294-1: 2024)</b>	<b>STN EN ISO 17294-1</b>  75 7478
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Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 1: General requirements (ISO 17294-1:2024)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/24

Obsahuje: EN ISO 17294-1:2024, ISO 17294-1:2024

Oznámením tejto normy sa ruší  
STN EN ISO 17294-1 (75 7478) z marca 2007

**138691**

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2024  
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.

EUROPEAN STANDARD

**EN ISO 17294-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2024

ICS 13.060.50

Supersedes EN ISO 17294-1:2006

English Version

## Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 1: General requirements (ISO 17294-1:2024)

Qualité de l'eau - Application de la spectrométrie de masse avec plasma à couplage inductif (ICP-MS) - Partie 1: Exigences générales (ISO 17294-1:2024)

Wasserbeschaffenheit - Anwendung der induktiv gekoppelten Plasma-Massenspektrometrie (ICP-MS) - Teil 1: Allgemeine Anforderungen (ISO 17294-1:2024)

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**EN ISO 17294-1:2024 (E)**

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## **European foreword**

This document (EN ISO 17294-1:2024) has been prepared by Technical Committee ISO/TC 147 "Water quality" in collaboration with 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of an identical text or by endorsement, at the latest by October 2024, and conflicting national standards shall be withdrawn at the latest by October 2024.

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.

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# International Standard

**ISO 17294-1**

## **Water quality — Application of inductively coupled plasma mass spectrometry (ICP-MS) —**

### **Part 1: General requirements**

*Qualité de l'eau — Application de la spectrométrie de masse avec  
plasma à couplage inductif (ICP-MS) —*

*Partie 1: Exigences générales*

**Second edition  
2024-03**

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Published in Switzerland

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## ISO 17294-1:2024(en)

### 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 document 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)).

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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 17294-1:2004), which has been technically revised.

The main changes are as follows:

- scope has been revised to align with ISO 17294-2;
- text has been revised to reflect currently available instruments used in routine daily practice in many laboratories;
- [Clauses 5](#) and [6](#) have been revised to reflect the state-of-the-art equipment used to measure elements according to ISO 17294-2;
- abbreviated terms in [Clause 9](#) have been revised to align with common terms used in other standards;
- [Table A.1](#) has been updated.

A list of all parts in the ISO 17294 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](http://www.iso.org/members.html).

**ISO 17294-1:2024(en)****Introduction**

Since the last edition of this document, new developments in metal analysis with inductively coupled plasma mass spectrometry (ICP-MS) have taken place. The use of the collision or reaction cell (CRC) technology in quadrupole ICP-MS and triple quadrupole ICP-MS has increased in laboratories. For this reason, this document has been revised and new items have been added.

The intention for the revision of this document was to focus on the instrumentation currently available and in use for determining elements according to ISO 17294-2 in daily practice in laboratories. The consequence of this starting point is that the use of correction formulae has been moved to [Annex A](#) because of its reduced importance in modern instrumentation. Many principles also apply for high-resolution or accurate mass instrumentation, although they are not described in detail in this document.

# Water quality — Application of inductively coupled plasma mass spectrometry (ICP-MS) —

## Part 1: General requirements

### 1 Scope

This document specifies the principles of inductively coupled plasma mass spectrometry (ICP-MS) and provides general requirements for the use of this technique to determine elements in water, digests of sludges and sediments (e.g. digests of water as described in ISO 15587-1 or ISO 15587-2). Generally, the measurement is carried out in water, but gases, vapours or fine particulate matter can be introduced too. This document applies to the use of ICP-MS for aqueous solution analysis.

The ultimate determination of the elements is described in a separate International Standard for each series of elements and matrix. The individual clauses of this document refer the user to these guidelines for the basic principles of the method and the configuration of the instrument.

### 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 Guide 33, *Reference materials — Good practice in using reference materials*

ISO 5725-1, *Accuracy (trueness and precision) of measurement methods and results — Part 1: General principles and definitions*

ISO 6206, *Chemical products for industrial use — Sampling — Vocabulary*

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