

# ILNAS

Institut luxembourgeois de la normalisation  
de l'accréditation, de la sécurité et qualité  
des produits et services

## ILNAS-EN ISO 17294-2:2016

### **Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 2: Determination of selected elements**

Wasserbeschaffenheit - Anwendung der  
induktiv gekoppelten Plasma-  
Massenspektrometrie (ICP-MS) - Teil 2:  
Bestimmung von ausgewählten

Qualité de l'eau - Application de la  
spectrométrie de masse avec plasma à  
couplage inductif (ICP-MS) - Partie 2:  
Dosage des éléments sélectionnés y

## National Foreword

This European Standard EN ISO 17294-2:2016 was adopted as Luxembourgish Standard ILNAS-EN ISO 17294-2:2016.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
- Foresee future developments
- Participate in technical committee meetings

<https://portail-qualite.public.lu/fr/normes-normalisation/participer-normalisation.html>

### THIS PUBLICATION IS COPYRIGHT PROTECTED

Nothing from this publication may be reproduced or utilized in any form or by any mean - electronic, mechanical, photocopying or any other data carries without prior permission!

English Version

Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 2: Determination of selected elements including uranium isotopes (ISO 17294-2:2016)

Qualité de l'eau - Application de la spectrométrie de masse avec plasma à couplage inductif (ICP-MS) - Partie 2: Dosage des éléments sélectionnés y compris les isotopes d'uranium (ISO 17294-2:2016)

Wasserbeschaffenheit - Anwendung der induktiv gekoppelten Plasma-Massenspektrometrie (ICP-MS) - Teil 2: Bestimmung von ausgewählten Elementen einschließlich Uran-Isotope (ISO 17294-2:2016)

This European Standard was approved by CEN on 28 February 2016.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, 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: Avenue Marnix 17, B-1000 Brussels

## Contents

	Page
European foreword.....	3

## European foreword

This document (EN ISO 17294-2:2016) 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 February 2017, and conflicting national standards shall be withdrawn at the latest by February 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 17294-2:2004.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 17294-2:2016 has been approved by CEN as EN ISO 17294-2:2016 without any modification.

Second edition  
2016-07-15

---

---

---

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

**Part 2:  
Determination of selected elements  
including uranium isotopes**

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

*Partie 2: Dosage des éléments sélectionnés y compris les isotopes  
d'uranium*



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, 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  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

## 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>2</b>
<b>3 Terms and definitions</b>	<b>3</b>
<b>4 Principle</b>	<b>3</b>
<b>5 Interferences</b>	<b>3</b>
5.1 General	3
5.2 Spectral interferences	4
5.2.1 General	4
5.2.2 Isobaric elemental	4
5.2.3 Polyatomic interferences	6
5.3 Non-spectral interferences	6
<b>6 Reagents</b>	<b>7</b>
<b>7 Apparatus</b>	<b>11</b>
<b>8 Sampling</b>	<b>12</b>
<b>9 Sample pre-treatment</b>	<b>12</b>
9.1 Determination of the mass concentration of dissolved elements without digestion	12
9.2 Determination of the total mass concentration after digestion	12
<b>10 Procedure</b>	<b>13</b>
10.1 General	13
10.2 Calibration of the ICP-MS system	13
10.3 Measurement of the matrix solution for evaluation of the correction factors	14
10.4 Measurement of the samples	14
<b>11 Calculation</b>	<b>14</b>
<b>12 Test report</b>	<b>15</b>
<b>Annex A (normative) Determination of the mass concentration of uranium isotopes</b>	<b>16</b>
<b>Annex B (informative) Description of the matrices of the samples used for the interlaboratory trial</b>	<b>26</b>
<b>Annex C (informative) Performance data</b>	<b>28</b>
<b>Bibliography</b>	<b>31</b>