

Calidad del agua. Technetium-99. Parte 1: Método de ensayo mediante recuento de centelleo líquido (ISO 22125-1:2019) (Ratificada por la Asociación Española de Normalización en enero de 2020.)

UNE-EN ISO 22125-1:2019

Calidad del agua. Technetium-99. Parte 1: Método de ensayo mediante recuento de centelleo líquido (ISO 22125-1:2019) (Ratificada por la Asociación Española de Normalización en enero de 2020.)

*Water quality - Technetium-99 - Part 1: Test method using liquid scintillation counting (ISO 22125-1:2019) (Endorsed by Asociación Española de Normalización in January of 2020.)*

*Qualité de l'eau - Technétium-99 - Partie 1: Méthode d'essai par comptage des scintillations en milieu liquide (ISO 22125-1:2019) (Entérinée par l'Asociación Española de Normalización en janvier 2020.)*

En cumplimiento del punto 11.2.5.4 de las Reglas Internas de CEN/CENELEC Parte 2, se ha otorgado el rango de documento normativo español UNE al documento normativo europeo EN ISO 22125-1:2019 (Fecha de disponibilidad 2019-11-27)

Este documento está disponible en los idiomas oficiales de CEN/CENELEC/ETSI.

Este anuncio causará efecto a partir del primer día del mes siguiente al de su publicación en la revista UNE.

La correspondiente versión oficial de este documento se encuentra disponible en la Asociación Española de Normalización (Génova 6 28004 MADRID, [www.une.org](http://www.une.org)).

Las observaciones a este documento han de dirigirse a:

## Asociación Española de Normalización

Génova, 6  
28004 MADRID-España  
Tel.: 915 294 900  
[info@une.org](mailto:info@une.org)  
[www.une.org](http://www.une.org)

© UNE 2020

Prohibida la reproducción sin el consentimiento de UNE.

Todos los derechos de propiedad intelectual de la presente norma son titularidad de UNE.

EUROPEAN STANDARD

**EN ISO 22125-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2019

ICS 13.060.60; 17.240

English Version

**Water quality - Technetium-99 - Part 1: Test method using  
liquid scintillation counting (ISO 22125-1:2019)**

Qualité de l'eau - Technétium-99 - Partie 1: Méthode  
d'essai par comptage des scintillations en milieu  
liquide (ISO 22125-1:2019)

Wasserbeschaffenheit - Technetium-99 - Teil 1:  
Verfahren mit dem Flüssigszintillationszähler (ISO  
22125-1:2019)

This European Standard was approved by CEN on 8 September 2019.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, 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: Rue de la Science 23, B-1040 Brussels**

| <b>Contents</b>               | <b>Page</b> |
|-------------------------------|-------------|
| <b>European foreword.....</b> | <b>3</b>    |

## European foreword

This document (EN ISO 22125-1:2019) 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 May 2020, and conflicting national standards shall be withdrawn at the latest by May 2020.

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.

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

## Endorsement notice

The text of ISO 22125-1:2019 has been approved by CEN as EN ISO 22125-1:2019 without any modification.

# 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>1</b>  |
| <b>3 Terms, definitions and symbols</b> .....                       | <b>2</b>  |
| <b>4 Principle</b> .....  | <b>3</b>  |
| <b>5 Sampling and storage</b> .....                                 | <b>4</b>  |
| <b>6 Procedure</b> .....  | <b>4</b>  |
| 6.1 Sample preparation for measurement.....                         | 4         |
| 6.2 Sample measurement.....   | 5         |
| <b>7 Quality assurance and quality control program</b> .....        | <b>5</b>  |
| 7.1 General.....  | 5         |
| 7.2 Variables that could influence the measurement.....             | 5         |
| 7.3 Instrument verification.....                                    | 5         |
| 7.4 Contamination.....  | 5         |
| 7.5 Interference control.....                                       | 5         |
| 7.6 Method verification.....  | 5         |
| 7.7 Demonstration of analyst capability.....                        | 6         |
| 7.8 Sample measurement.....   | 6         |
| <b>8 Expression of results</b> .....                                | <b>6</b>  |
| 8.1 Sample activity, recovery and uncertainties.....                | 6         |
| 8.2 Decision threshold.....   | 8         |
| 8.3 Detection limit.....  | 9         |
| 8.4 Confidence interval limits.....                                 | 9         |
| 8.5 Calculation using the activity per unit of volume.....          | 9         |
| 8.6 Conversion of activity concentration to mass concentration..... | 10        |
| 8.7 Conversion of mass concentration to volume unit.....            | 10        |
| <b>9 Test report</b> .....  | <b>10</b> |
| <b>Annex A (informative) Method 1 — TEVA resin</b> .....            | <b>12</b> |
| <b>Annex B (informative) Method 2 — TRU resin</b> .....             | <b>15</b> |
| <b>Annex C (informative) Method 3 — Anion exchange resin</b> .....  | <b>18</b> |
| <b>Bibliography</b> .....   | <b>20</b> |

## 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](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 3, *Radioactivity measurements*.

A list of all the parts in the ISO 22125 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).