



SLOVENSKI STANDARD SIST EN ISO 13163:2019

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Kakovost vode - Svinec Pb-210 - Preskusna metoda s štetjem s tekočinskim scintilatorjem (ISO 13163:2013)

Water quality - Lead-210 - Test method using liquid scintillation counting (ISO 13163:2013)

Wasserbeschaffenheit - Blei-210 - Teil Verfahren mit dem Flüssigszintillationszähler (ISO 13163:2013)

Qualité de l'eau - Plomb 210 - Méthode d'essai par comptage des scintillations en milieu liquide (ISO 13163:2013)

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Ta slovenski standard je istoveten z: EN ISO 13163:2019

ICS:

13.060.60	Preiskava fizikalnih lastnosti vode	Examination of physical properties of water
17.240	Merjenje sevanja	Radiation measurements

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EUROPEAN STANDARD

EN ISO 13163

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2019

ICS 13.060.60; 17.240

English Version

Water quality - Lead-210 - Test method using liquid scintillation counting (ISO 13163:2013)

Qualité de l'eau - Plomb 210 - Méthode d'essai par comptage des scintillations en milieu liquide (ISO 13163:2013)

Wasserbeschaffenheit - Blei-210 - Verfahren mit dem Flüssigszintillationszähler (ISO 13163:2013)

This European Standard was approved by CEN on 8 April 2001.

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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.

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European foreword

The text of ISO 13163:2013 has been prepared by Technical Committee ISO/TC 147 "Water quality" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 13163:2019 by 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of an identical text or by endorsement, at the latest by December 2019, and conflicting national standards shall be withdrawn at the latest by December 2019.

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
13163

First edition
2013-10-15

**Water quality — Lead-210 — Test
method using liquid scintillation
counting**

*Qualité de l'eau — Plomb 210 — Méthode d'essai par comptage des
scintillations en milieu liquide*

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ISO 13163:2013(E)**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. www.iso.org/directives

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The committee responsible for this document is ISO/TC 147, *Water quality*, Subcommittee SC 3, *Radioactivity measurements*.

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Introduction

Radioactivity from several naturally occurring and anthropogenic sources is present throughout the environment. Thus, water bodies (e.g. surface water, groundwater, seawater) can contain the following radionuclides of natural or human-made origins:

- natural radionuclides, including potassium-40, and those originating from the thorium and uranium decay series, particularly radium-226, radium-228, uranium-234, uranium-238, and lead-210, can be found in water for natural reasons (e.g. desorption from the soil and wash-off by rain water) or can be released from technological processes involving naturally occurring radioactive materials (e.g. the mining and processing of mineral sands or the production and use of phosphate fertilizer);
- human-made radionuclides, such as transuranium elements (americium, plutonium, neptunium, curium), tritium, carbon-14, strontium-90, and gamma-emitting radionuclides, can also be found in natural waters as a result of authorized routine releases into the environment in small quantities of the effluent discharged from nuclear fuel cycle facilities. They are also released into the environment following their use in unsealed form for medical and industrial applications. They are also found in the water as a result of past fallout contamination resulting from the explosion in the atmosphere of nuclear devices and accidents such as those that occurred in Chernobyl and Fukushima.

Drinking water may thus contain radionuclides at activity concentrations which could present a risk to human health. In order to assess the quality of drinking water (including mineral waters and spring waters) with respect to its radionuclide content and to provide guidance on reducing health risks by taking measures to decrease radionuclide activity concentrations, water resources (groundwater, river, lake, sea, etc.) and drinking water are monitored for their radioactivity content as recommended by the World Health Organization [WHO] and required by some national authorities.

An International Standard on a test method for lead-210 activity concentrations in water samples is justified for test laboratories carrying out these measurements, required sometimes by national authorities, as laboratories may have to obtain a specific accreditation for radionuclide measurement in drinking water samples.

Lead-210 activity concentration can vary according to local geological and climatic characteristics and usually ranges from 2 mBq·l⁻¹ to 300 mBq·l⁻¹ (References [12][13]). The guidance level for lead-210 in drinking water, as recommended by WHO, is 100 mBq·l⁻¹ (Reference [14]).

NOTE The guidance level is the activity concentration with an intake of 2 l·day⁻¹ of drinking water for 1 year that results in an effective dose of 0,1 mSv·year⁻¹ for members of the public, an effective dose that represents a very low level of risk that is not expected to give rise to any detectable adverse health effect.

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