ICS 13.280 SLOVENSKÁ TECHNICKÁ NORMA Máj 2025

STN	**Radiačná ochrana Monitorovanie pracovníkov profesne vystavených riziku vnútornej kontaminácie rádioaktívnym materiálom (ISO 20553: 2025)**	**STN EN ISO 20553** 40 1405

Radiation protection - Monitoring of workers occupationally exposed to a risk of internal contamination with radioactive material (ISO 20553:2025)

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. 04/25

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Oznámením tejto normy sa ruší
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EN ISO 20553

January 2025

ICS 13.280

Supersedes EN ISO 20553:2017

English Version

Radiation protection - Monitoring of workers occupationally exposed to a risk of internal contamination with radioactive material (ISO 20553:2025)

Radioprotection - Surveillance professionnelle des travailleurs exposés à un risque de contamination interne par des matériaux radioactifs (ISO 20553:2025)

Strahlenschutz - Überwachung von beruflich strahlenexponierten Personen, bei denen ein Risiko der Kontamination mit radioaktiven Stoffen besteht (ISO 20553:2025)

This European Standard was approved by CEN on 20 January 2025.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN ISO 20553:2025 E

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European foreword

This document (EN ISO 20553:2025) has been prepared by Technical Committee ISO/TC 85 "Nuclear energy, nuclear technologies, and radiological protection" in collaboration with Technical Committee CEN/TC 430 “Nuclear energy, nuclear technologies, and radiological protection” the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by July 2025, and conflicting national standards shall be withdrawn at the latest by July 2025.

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.

This document supersedes EN ISO 20553:2017.

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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, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 20553:2025 has been approved by CEN as EN ISO 20553:2025 without any modification.

International Standard

ISO 20553

Radiation protection — Monitoring of workers occupationally exposed to a risk of internal contamination with radioactive material

Radioprotection — Surveillance professionnelle des travailleurs exposés à un risque de contamination interne par des substances radioactives

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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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).

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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.

This document was prepared by Technical Committee ISO/TC 85, *Nuclear energy, nuclear technologies, and radiological protection*, Subcommittee SC 2, *Radiological protection,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 430, *Nuclear energy, nuclear technologies, and radiological protection,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 20553:2006), which has been technically revised.

The main changes are as follows:

— the reference to the recent publication of ICRP Occupational Intakes of Radionuclides (OIR) series, instead of ICRP publications 66 and 78, to calculate the maximum time intervals for routine monitoring programmes.

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.

Introduction

In the course of employment, individuals may work with radioactive materials that could be taken into the body. Minimising the risks to workers from incorporated radionuclides requires the monitoring of potential or actual intakes. The requirements for such a monitoring programme and the selection of methods and frequencies of monitoring depend upon the applicable legislation or regulatory body, the purpose of the radiation protection programme, the probability of potential intakes, and the characteristics of the materials handled.

This document offers guidance for making a decision whether a monitoring programme is required, in the absence of any value set by regulations, and proposes the methodology for setting up a monitoring program, as well as its design. Its intention is to optimise the efforts for such a monitoring programme consistent with legal requirements and with the purpose of the radiation protection programme. Recommendations of international expert bodies and international experience with the practical application of these recommendations in radiation protection programmes have been considered in the development of this document. Its application facilitates the exchanges of information between authorities, supervisory institutions and employers. This document is not a substitute for legal requirements.

International Standard **ISO 20553:2025(en)**

Radiation protection — Monitoring of workers occupationally exposed to a risk of internal contamination with radioactive material

1 Scope

This document specifies the minimum requirements for the design of programmes to monitor workers exposed to the risk of internal contamination by radioactive material and establishes principles for the development of compatible goals and requirements for monitoring programmes.

This document specifies the

a) purposes of monitoring and monitoring programmes,

b) description of the different categories of monitoring programmes,

c) quantitative criteria for conducting monitoring programmes,

d) suitable monitoring methods and criteria for their selection,

e) information that has to be collected for the design of a monitoring programme,

f) general requirements for monitoring programmes (e.g. detection limits, tolerated uncertainties),

g) frequencies of measurements calculated using the ICRP Occupational Intakes of Radionuclides (OIR) series,

h) individual monitoring in specific cases (intake of actinides, intake via a wound and intake through the intact skin),

i) quality assurance, and

j) documentation, reporting and record-keeping.

This document does not apply to

— the monitoring of exposure to radon and its radioactive decay products,

— detailed descriptions of measuring methods and techniques,

— detailed procedures for in vivo measurements and in vitro analysis,

— interpretation of measurements results in terms of dose,

— biokinetic data and mathematical models for converting measured activities into absorbed dose, equivalent dose and effective dose,

— the investigation of the causes or implications of an exposure or intake.

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 15189, *Medical laboratories — Requirements for quality and competence*

ISO 17025, *General requirements for the competence of testing and calibration laboratories*

ISO 23588, *Radiological protection — General requirements for proficiency tests for in vivo radiobioassay*

ISO 28218, *Radiation protection — Performance criteria for radiobioassay*

Note 1 to entry: It is expressed as $A = -dN/dt$. Activity can be calculated as $A = \lambda N$, where λ is the decay constant and N is the number of present radioactive nuclei.

Note 2 to entry: The special name for the unit of activity in the International System of Units is becquerel (Bq), One Bq equals one transformation per second (1 Bq = 1 s^{-1}). The use of the former unit curie (1 Ci = 3,7 x 10^{10} Bq), is also accepted in many countries and by the Bureau International des Poids et Mesures.