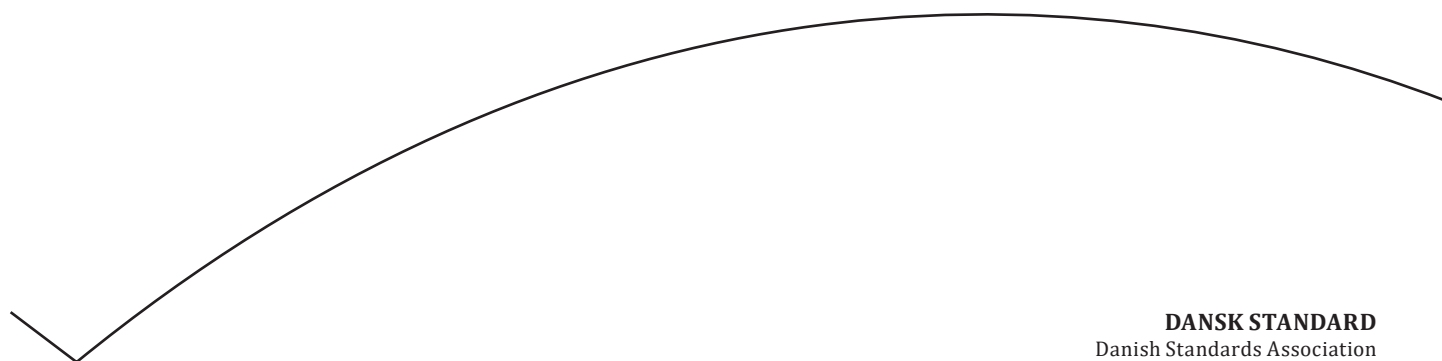


Beskyttelse mod stråling – Tilsyn med personale med erhvervsrisiko for intern kontamination med radioaktive stoffer

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



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of an identical text or by endorsement, at the latest by July 2025, and conflicting national standards shall be withdrawn at the latest by July 2025.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

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Endorsement notice

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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*

**Second edition
2025-01**

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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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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.

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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.

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*

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

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