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STN	**Technológia jadrového paliva Coulometrická skúška plutónia riadeným potenciálom (ISO 12183: 2024)**	**STN EN ISO 12183** 40 1012

Nuclear fuel technology - Controlled-potential coulometric measurement of plutonium (ISO 12183:2024)

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. 08/24

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Oznámením tejto normy sa ruší
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NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 12183

May 2024

ICS 27.120.30

Supersedes EN ISO 12183:2019

English Version

Nuclear fuel technology - Controlled-potential coulometric measurement of plutonium (ISO 12183:2024)

Technologie du combustible nucléaire - Dosage du plutonium par coulométrie à potentiel imposé (ISO 12183:2024)

Kernbrennstofftechnologie - Coulometrische Bestimmung von Plutonium mit kontrolliertem Potential (ISO 12183:2024)

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

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European foreword

This document (EN ISO 12183:2024) 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of an identical text or by endorsement, at the latest by November 2024, and conflicting national standards shall be withdrawn at the latest by November 2024.

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Endorsement notice

The text of ISO 12183:2024 has been approved by CEN as EN ISO 12183:2024 without any modification.

International Standard

ISO 12183

Nuclear fuel technology — Controlled-potential coulometric measurement of plutonium

Technologie du combustible nucléaire — Dosage du plutonium par coulométrie à potentiel imposé

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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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This document was prepared by Technical Committee ISO/TC 85, *Nuclear energy, nuclear technologies, and radiological protection,* Subcommittee SC 5, *Nuclear fuel cycle,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 430, *Nuclear energy,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 12183:2016), which has been technically revised.

The main changes are as follows:

— Figures 1 and 2 have been revised to resolve errors introduced in the third edition of this document;

— quantity values and uncertainties values have been reformatted to comply with requirements for properly stating these values with SI units;

— editorial changes were made throughout the document to ensure clarity of the instructions;

— words with optional spellings were corrected to match ISO/IEC guidance;

— an additional key step was added to Clause 4 to indicated that the moles of plutonium obtained by controlled-potential coulometry is multiplied by the molar mass of plutonium obtained by other means, such as mass spectrometry or process knowledge;

— a formula has been added to 8.4 to calculate the amount of substance of plutonium in millimoles in addition to the mass of plutonium in milligrams;

— Clause 12 has been added to discuss traceability to SI units.

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.

International Standard **ISO 12183:2024(en)**

Nuclear fuel technology — Controlled-potential coulometric measurement of plutonium

1 Scope

This document specifies an analytical method for the electrochemical measurement of pure plutonium nitrate solutions of nuclear grade, with an expanded uncertainty not exceeding ±0,2 % at the confidence level of 0,95 for a single determination (coverage factor, $k = 2$). The method is applicable for aqueous solutions containing plutonium at more than 0,5 g/l and test samples containing plutonium between 4 mg and 15 mg. Application of this technique to solutions containing plutonium at less than 0,5 g/l and test samples containing plutonium at less than 4 mg requires experimental demonstration by the user that applicable data quality objectives will be met.

2 Normative references

There are no normative references in this document.