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| <b>STN</b> | <b>Technológia jadrového paliva<br/>Stanovenie izotopovej a základnej koncentrácie<br/>uránu a plutónia jadrových materiálov v roztokoch<br/>kyseliny dusičnej tepelnou ionizáciou<br/>hmotnostnej spektrometrie (ISO 8299: 2019)</b> | <b>STN<br/>EN ISO 8299</b><br><br>40 1021 |
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Nuclear fuel technology - Determination of the isotopic and elemental uranium and plutonium concentrations of nuclear materials in nitric acid solutions by thermal-ionization mass spectrometry (ISO 8299:2019)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

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## Nuclear fuel technology - Determination of the isotopic and elemental uranium and plutonium concentrations of nuclear materials in nitric acid solutions by thermal-ionization mass spectrometry (ISO 8299:2019)

Technologie du combustible nucléaire - Détermination de la teneur isotopique et des concentrations en matériaux nucléaires de l'uranium et du plutonium dans une solution d'acide nitrique par spectrométrie de masse à thermoionisation (ISO 8299:2019)

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**EN ISO 8299:2021 (E)**

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

## **European foreword**

The text of ISO 8299:2019 has been prepared by Technical Committee ISO/TC 85 "Nuclear energy, nuclear technologies, and radiological protection" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 8299:2021 by Technical Committee CEN/TC 430 "Nuclear energy, nuclear technologies, and radiological protection" the secretariat of which is held by AFNOR.

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The text of ISO 8299:2019 has been approved by CEN as EN ISO 8299:2021 without any modification.

**INTERNATIONAL  
STANDARD**

**ISO  
8299**

Third edition  
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**Nuclear fuel technology —  
Determination of the isotopic and  
elemental uranium and plutonium  
concentrations of nuclear materials  
in nitric acid solutions by thermal-  
ionization mass spectrometry**

*Technologie du combustible nucléaire — Détermination de la  
teneur isotopique et des concentrations en matériaux nucléaires de  
l'uranium et du plutonium dans une solution d'acide nitrique par  
spectrométrie de masse à thermoionisation*



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ISO 8299:2019(E)

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# Contents

Page

|  |           |
|--|-----------|
| <b>Foreword</b> .....  | <b>v</b>  |
| <b>1 Scope</b> .....   | <b>1</b>  |
| <b>2 Normative references</b> .....  | <b>1</b>  |
| <b>3 Terms and definitions</b> .....   | <b>1</b>  |
| <b>4 Principle</b> .....   | <b>1</b>  |
| <b>5 Reference materials and reagents</b> .....  | <b>2</b>  |
| 5.1 Spikes and reference materials.....  | 2         |
| 5.2 Other chemical reagents.....   | 3         |
| 5.3 Resin, applicable for separation/purification of Pu and U.....   | 4         |
| 5.3.1 General.....   | 4         |
| 5.3.2 Preparation of resin.....  | 4         |
| <b>6 Apparatus</b> .....   | <b>5</b>  |
| <b>7 Apparatus for mass spectrometry</b> .....   | <b>6</b>  |
| <b>8 Sample preparation</b> .....  | <b>6</b>  |
| 8.1 Subsampling and spiking.....   | 6         |
| 8.1.1 Pellet or powder samples.....  | 7         |
| 8.1.2 Concentrated nuclear fuel solution samples (such as reprocessing solution).....                                    | 7         |
| 8.1.3 Plutonium nitrate solution samples (such as product solution from a reprocessing plant).....                       | 7         |
| 8.1.4 Dried nitrate samples.....   | 8         |
| 8.2 Chemical valency adjustment.....   | 8         |
| 8.2.1 Valence adjustment with ferrous solution.....  | 8         |
| 8.2.2 Valence adjustment with hydrogen peroxide.....   | 8         |
| 8.3 Sample separation/purification.....  | 9         |
| 8.3.1 Ion exchange with anion-exchange resin.....  | 9         |
| 8.3.2 Purification with extraction separation resins (see 5.3.1.2).....  | 10        |
| 8.4 Replicate treatments.....  | 10        |
| <b>9 Filaments preparation</b> .....   | <b>10</b> |
| 9.1 Degassing of filaments.....  | 10        |
| 9.2 Sample loading.....  | 10        |
| 9.2.1 Normal sample loading.....   | 10        |
| 9.2.2 Graphite loading technique.....  | 10        |
| 9.2.3 Resin-bead loading on single filaments for Pu samples.....   | 11        |
| 9.3 Filament mounting (filament assemblies preparation).....   | 11        |
| <b>10 Instrument calibration</b> .....   | <b>11</b> |
| 10.1 Mass calibration.....   | 11        |
| 10.2 Gain calibration for Faraday multi-detectors.....   | 11        |
| 10.3 Faraday detector calibration.....   | 11        |
| 10.4 Mass discrimination calibration.....  | 12        |
| <b>11 Isotopic mass spectrometric measurements</b> .....   | <b>12</b> |
| 11.1 Total evaporation measurements using a single or double filament assembly and a multi-Faraday collector system..... | 12        |
| 11.2 Bias correction method using a double filament assembly and a multi-Faraday collector system.....                   | 13        |
| <b>12 Calculation of the results</b> .....   | <b>13</b> |
| 12.1 Calculation of ion current intensities.....   | 13        |
| 12.2 Calculation of mean, weighted mean and standard deviation on a set of ratios $x_i$ ( $i = 1 \dots N$ ).....         | 14        |
| 12.3 Mass discrimination correction.....   | 14        |
| 12.4 Calculation of the atomic percent abundance $A_i$ .....   | 14        |

**ISO 8299:2019(E)**

|   |  |           |
|---|--|-----------|
| 12.5  | Calculation of the isotopic mass percent $W_j$ ..... | 15        |
| 12.6  | Calculation of concentration .....                   | 15        |
| 12.7  | Isotope decay correction .....                       | 16        |
| <b>13</b>   | <b>Blanks</b> .....                                  | <b>16</b> |
| <b>14</b>   | <b>Quality control</b> .....                         | <b>16</b> |
| <b>15</b>   | <b>Measurement uncertainty</b> .....                 | <b>17</b> |
| 15.1  | Elemental assay .....                                | 17        |
| 15.2  | Isotopic analysis .....                              | 17        |
| <b>16</b>   | <b>Interferences</b> .....                           | <b>18</b> |
| <b>Annex A (normative) Preparation and standardization of spike solutions</b> ..... |  | <b>19</b> |
| <b>Bibliography</b> .....   |  | <b>25</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)).

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

This document was prepared by ISO/TC 85, *Nuclear energy, nuclear technologies, and radiological protection*, Subcommittee SC 5, *Nuclear installations, processes and technologies*.

This third edition cancels and replaces the second edition (ISO 8299:2005), which has been technically revised.

The main changes compared to the previous edition are as follows:

- the procedure for the preparation of resin used for separation and purification of the samples has been added in [5.3](#);
- sample preparation procedure from pellet, powder and other material forms to the solution has been added in [8.1](#);
- uncertainty of the measurement is considered in [Clause 15](#) instead of repeatability and accuracy.

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).



# Nuclear fuel technology — Determination of the isotopic and elemental uranium and plutonium concentrations of nuclear materials in nitric acid solutions by thermal-ionization mass spectrometry

## 1 Scope

This document specifies a method for the determination of the isotopic and elemental uranium and plutonium concentrations of nuclear materials in nitric acid solutions by thermal-ionization mass spectrometry.

The method applies to uranium and plutonium isotope composition and concentration measurement of irradiated Magnox and light water reactor fuels (boiling water reactor or pressurized water reactor), in final products at spent-fuel reprocessing plants, and in feed and products of MOX and uranium fuel fabrication. The method is applicable to other fuels, but the chemical separation and spike solution are, if necessary, adapted to suit each type of fuel.

## 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 10980, *Validation of the strength of reference solutions used for measuring concentrations*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**