

<b>STN</b>	<b>Jadrová energia</b> <b>Stanovenie obsahu Gd<sub>2</sub>O<sub>3</sub> v gadolíniových</b> <b>palivových zmesiach a v gadolíniových</b> <b>palivových peletách metódou atómovej emisnej</b> <b>spektrometrie so zdrojom indukčne viazanej</b> <b>plazmy (ICP-AES) (ISO 16796: 2022)</b>	<b>STN</b> <b>EN ISO 16796</b>  40 1025
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Nuclear energy - Determination of Gd<sub>2</sub>O<sub>3</sub> content in gadolinium fuel blends and gadolinium fuel pellets by atomic emission spectrometry using an inductively coupled plasma source (ICP-AES) (ISO 16796:2022)

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. 09/23

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EUROPEAN STANDARD

EN ISO 16796

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EUROPÄISCHE NORM

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English Version

Nuclear energy - Determination of Gd<sub>2</sub>O<sub>3</sub> content in gadolinium fuel blends and gadolinium fuel pellets by atomic emission spectrometry using an inductively coupled plasma source (ICP-AES) (ISO 16796:2022)

Énergie nucléaire - Dosage de Gd<sub>2</sub>O<sub>3</sub> dans des mélanges de poudres et dans des pastilles combustibles au gadolinium par spectrométrie par émission atomique à plasma à couplage inductif (ICP-AES) (ISO 16796:2022)

Kerntechnik - Bestimmung des Gadoliniumoxidgehalts in Gadolinium-Brennstoffgemischen und Gadolinium-Brennstofftabletten mittels Atomemissionsspektrometrie mit induktiv gekoppeltem Plasma (ISO 16796:2022)

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**EN ISO 16796:2023 (E)**

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## **European foreword**

The text of ISO 16796:2022 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 16796:2023 by 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of an identical text or by endorsement, at the latest by January 2024, and conflicting national standards shall be withdrawn at the latest by January 2024.

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## **Endorsement notice**

The text of ISO 16796:2022 has been approved by CEN as EN ISO 16796:2023 without any modification.



# INTERNATIONAL STANDARD

# ISO 16796

Second edition  
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## **Nuclear energy — Determination of $Gd_2O_3$ content in gadolinium fuel blends and gadolinium fuel pellets by atomic emission spectrometry using an inductively coupled plasma source (ICP-AES)**

*Énergie nucléaire — Dosage de  $Gd_2O_3$  dans des mélanges de poudres  
et dans des pastilles combustibles au gadolinium par spectrométrie  
par émission atomique à plasma à couplage inductif (ICP-AES)*



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ISO 16796:2022(E)

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## ISO 16796:2022(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 (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).

ISO 16796 was prepared by Technical Committee ISO/TC 85, *Nuclear energy, nuclear technologies, and radiological protection*, Subcommittee SC 5, *Nuclear installations, processes and technologies*.

This second edition cancels and replaces the first edition (ISO 16796:2004), which has been technically revised.

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 energy — Determination of $Gd_2O_3$ content in gadolinium fuel blends and gadolinium fuel pellets by atomic emission spectrometry using an inductively coupled plasma source (ICP-AES)

## 1 Scope

This document is applicable to the determination of gadolinium as  $Gd_2O_3$  in powder blends and sintered pellets of  $Gd_2O_3 + UO_2$  and  $((U, Gd) O_2)$  from mass fraction 10 g/kg to 100 g/kg (i.e. 1 % to 10 %), using a suitable ICP-AES instrument.

This methodology is capable of demonstrating compliance with agreed upon fuel specifications and associated data quality objectives provided the user has performed qualification measurements under their established measurement control program to demonstrate that measurement uncertainty requirements will be met with the desired level of confidence at the specification.

## 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 3696, *Water for analytical laboratory use — Specification and test methods*

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