ICS 27.120.30 SLOVENSKÁ TECHNICKÁ NORMA Marec 2018

| STN | **Jadrová energia<br>Stanovenie celkového obsahu vodíka v práškoch PuO2 a UO2 a spekaných peletách UO2, (U, Gd)O2 a (U, Pu)O2<br>Metóda extrakcie inertného plynu a určenia vodivosti (ISO 15651: 2015)** | **STN<br>EN ISO 15651**<br><br>40 1004 |
|---|---|---|

Nuclear energy - Determination of total hydrogen content in PuO2 and UO2 powders and UO2, (U,Gd)O2 and (U,Pu)O2 sintered pellets - Inert gas extraction and conductivity detection method (ISO 15651:2015)

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. 02/18

Obsahuje: EN ISO 15651:2017, ISO 15651:2015

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN ISO 15651

October 2017

ICS 27.120.30

English Version

# Nuclear energy - Determination of total hydrogen content in PuO2 and UO2 powders and UO2, (U,Gd)O2 and (U,Pu)O2 sintered pellets - Inert gas extraction and conductivity detection method (ISO 15651:2015)

Énergie nucléaire - Dosage de la teneur totale en hydrogène de poudres de PuO2 et UO2, et de pastilles frittées d'UO2, (U,Gd)O2 et (U,Pu)O2 - Méthode d'extraction par gaz inerte et méthode de mesure de la conductivité (ISO 15651:2015)

Kernenergie - Bestimmung des totalen Wasserstoffgehalts in PuO2- und UO2-Pulvern und UO2-, (U,Gd)O2- und (U,Pu)O2-gesinterte Pellets - Trägergasheißextraktion und Leitfähigkeitsbestimmungsverfahren (ISO 15651:2015)

This European Standard was approved by CEN on 13 September 2017.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**



Ref. No. EN ISO 15651:2017 E

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# European foreword

The text of ISO 15651:2015 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 15651:2017 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 April 2018, and conflicting national standards shall be withdrawn at the latest by April 2018.

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

The text of ISO 15651:2015 has been approved by CEN as EN ISO 15651:2017 without any modification.

INTERNATIONAL STANDARD

**ISO 15651**

First edition
2015-02-15

# Nuclear energy — Determination of total hydrogen content in $PuO_2$ and $UO_2$ powders and $UO_2$, $(U,Gd)O_2$ and $(U,Pu)O_2$ sintered pellets — Inert gas extraction and conductivity detection method

*Énergie nucléaire — Dosage de la teneur totale en hydrogène de poudres de $PuO_2$ et $UO_2$, et de pastilles frittées d'$UO_2$, $(U,Gd)O_2$ et $(U,Pu)O_2$ — Méthode d'extraction par gaz inerte et méthode de mesure de la conductivité*

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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 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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/TC 85, *Nuclear Energy*, Subcommittee SC 5, *Fuel Technology*.

# Nuclear energy — Determination of total hydrogen content in $PuO_2$ and $UO_2$ powders and $UO_2$, $(U,Gd)O_2$ and $(U,Pu)O_2$ sintered pellets — Inert gas extraction and conductivity detection method

## 1 Scope

This International Standard describes a procedure for measuring the total hydrogen content of $UO_2$ and $PuO_2$ powders (up to 2 000 µg/g oxide) and of $UO_2$ and $(U,Gd)O_2$ and $(U,Pu)O_2$ pellets (up to 10 µg/g oxide). The total hydrogen content results from adsorbed water, water of crystallization, hydrocarbon, and other hydrogenated compounds which can exist as impurities in the fuel.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC Guide 98-3:2008, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM: 1995)*