ICS 27.120.30 SLOVENSKÁ TECHNICKÁ NORMA Marec 2018

| STN | **Stanovenie rozpustnosti plutónia v neožiarených palivových peletách zo zmesi oxidov (U, Pu)O2 v kyseline dusičnej (ISO 21483: 2013)** | **STN EN ISO 21483**<br><br>40 1003 |
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Determination of solubility in nitric acid of plutonium in unirradiated mixed oxide fuel pellets (U, Pu) O2 (ISO 21483:2013)

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 21483:2017, ISO 21483:2013

**126217**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN ISO 21483

October 2017

ICS 27.120.30

English Version

# Determination of solubility in nitric acid of plutonium in unirradiated mixed oxide fuel pellets (U, Pu) O2 (ISO 21483:2013)

Détermination de la solubilité dans I'acide nitrique du plutonium des pastilles (U, Pu) O2 de combustibles d'oxydes mixtes non irradiés (ISO 21483:2013)

Bestimmung der Löslichkeit in Salpetersäure von Plutonium in unbestrahlten (U, Pu) O2-Mischoxid-Pellets (ISO 21483:2013)

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

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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

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



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# European foreword

The text of ISO 21483:2013 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 21483:2017 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.

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## Endorsement notice

The text of ISO 21483:2013 has been approved by CEN as EN ISO 21483:2017 without any modification.

INTERNATIONAL STANDARD

**ISO 21483**

First edition
2013-11-01

# Determination of solubility in nitric acid of plutonium in unirradiated mixed oxide fuel pellets (U, Pu) O2

*Détermination de la solubilité dans l'acide nitrique du plutonium des pastilles (U, Pu) O2 de combustibles d'oxydes mixtes non irradiés*

Reference number
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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. www.iso.org/directives

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The committee responsible for this document is ISO/TC 85, *Nuclear energy, nuclear technologies and radiological protection*, Subcommittee SC 5, *Nuclear fuel cycle*.

This first edition of ISO 21483 cancels and replaces ISO 12184:1994, which has been technically revised.

**INTERNATIONAL STANDARD** **ISO 21483:2013(E)**

# Determination of solubility in nitric acid of plutonium in unirradiated mixed oxide fuel pellets (U, Pu) O2

## 1 Scope

This International Standard specifies an analytical method for determining the solubility in nitric acid of plutonium in pellets of unirradiated mixed oxide fuel (light-water reactor fuels). The results provide information about the expected dissolution behaviour of irradiated pellets under industrial reprocessing conditions. In this aspect, the specific conditions (e.g. time of the test) may vary depending upon the need to match to a specific reprocessor's requirements. The test is aimed at determining solubility under equilibrium conditions rather than the kinetics of dissolution and hence allows for a second dissolution period.

## 2 Principle

A specified number of mixed oxide pellets of known plutonium content and mass are dissolved in a boiling nitric acid solution. The initial concentration of the nitric acid, the final content of U, Pu and the boiling time are carefully controlled. The undissolved residue is then dissolved quantitatively by boiling in a mixture of nitric acid and hydrofluoric acid. The plutonium content of this residue is determined by an appropriate analytical method. The solubility is expressed by the ratio of the amount of plutonium dissolved in nitric acid to the amount of plutonium in the sample.