ICS 27.120.30 SLOVENSKÁ TECHNICKÁ NORMA September 2016

STN	**Technológia jadrového paliva. Chemické oddeľovanie a čistenie uránu a plutónia v roztokoch kyseliny dusičnej na izotopovú a izotopovú zrieďovaciu analýzu extrakčnou chromatografiou s extrakčným rozpúšťadlom. Časť 2: Vzorky s obsahom plutónia a uránu v nanogramoch a menším (ISO 15366-2: 2014).**	**STN** **EN ISO 15366-2** 40 1015

Nuclear fuel technology - Chemical separation and purification of uranium and plutonium in nitric acid solutions for isotopic and isotopic dilution analysis by solvent extraction chromatography - Part 2: Samples containing plutonium and uranium in the nanogram range and below (ISO 15366-2:2014)

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. 08/16

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English Version

Nuclear fuel technology - Chemical separation and purification of uranium and plutonium in nitric acid solutions for isotopic and isotopic dilution analysis by solvent extraction chromatography - Part 2: Samples containing plutonium and uranium in the nanogram range and below (ISO 15366-2:2014)

Technologie du combustible nucléaire - Séparation et purification chimiques de l'uranium et du plutonium dans les solutions d'acide nitrique par extraction chromatographique par solvant pour les mesures isotopiques et les analyses par dilution isotopique - Partie 2: Échantillons ayant des teneurs en plutonium et en uranium de l'ordre du nanogramme et inférieures (ISO 15366-2:2014)

Kernbrennstofftechnologie - Chemische Trennung und Reinigung von Uran und Plutonium in Salpetersäure-Lösungen für Isotopen- und Isotopenverdünnungsanalysen mittels Lösemittelextraktions-Chromatographie - Teil 2: Proben mit Plutonium und Uranium im Nanogrammbereich und weniger (ISO 15366-2:2014)

This European Standard was approved by CEN on 21 February 2016.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents

Page

European foreword

The text of ISO 15366-2:2014 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 15366-2:2016 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 October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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Endorsement notice

The text of ISO 15366-2:2014 has been approved by CEN as EN ISO 15366-2:2016 without any modification.

INTERNATIONAL STANDARD

ISO 15366-2

First edition
2014-07-01

Nuclear fuel technology — Chemical separation and purification of uranium and plutonium in nitric acid solutions for isotopic and isotopic dilution analysis by solvent extraction chromatography —

Part 2: Samples containing plutonium and uranium in the nanogram range and below

Technologie du combustible nucléaire — Séparation et purification chimiques de l'uranium et du plutonium dans les solutions d'acide nitrique par extraction chromatographique par solvant pour les mesures isotopiques et les analyses par dilution isotopique —

Partie 2: Échantillons ayant des teneurs en plutonium et en uranium de l'ordre du nanogramme et inférieures

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Contents

Page

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*, Subcommittee SC 5, *Nuclear Fuel Technology*.

This first edition, together with the first edition of ISO 15366-1, cancels and replaces the first edition of ISO 15366:1999, which has been technically revised.

ISO 15366 consists of the following parts, under the general title *Chemical separation and purification of uranium and plutonium in nitric acid solutions for isotopic and isotopic dilution analysis by solvent extraction chromatography —*

— *Part 1: Sample containing plutonium in the microgram range and uranium in the milligram range*

— *Part 2: Sample containing plutonium and uranium amounts in the nanogram range and below*

INTERNATIONAL STANDARD ISO 15366-2:2014(E)

Nuclear fuel technology — Chemical separation and purification of uranium and plutonium in nitric acid solutions for isotopic and isotopic dilution analysis by solvent extraction chromatography —

Part 2: Samples containing plutonium and uranium in the nanogram range and below

1 Scope

This part of ISO 15366 describes procedures to chemically separate and purify uranium and plutonium in dissolved solutions of irradiated light water reactor fuels and in samples of high active liquid waste of spent fuel reprocessing plants, prior to their isotopic analysis by e.g. mass spectrometric method (see ISO 8299[1]) or alpha spectrometry (see ISO 11483[2]). This part of ISO 15366 describes a slightly different separation technique from ISO 15366-1, based on the same chemistry, using smaller columns, different support material and special purification steps, applicable to samples containing plutonium and uranium amounts in the nanogram range and below. The detection limits were found to be 500 pg plutonium and 500 pg uranium. Annex A describes the preparation of the columns and the column support materials.

In comparison with ISO 15366-1, as uranium and plutonium amounts are lowest, additional purification on an anion exchange resin is performed.