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STN	**Prášok oxidu uraničitého Stanovenie zdanlivej objemovej hmotnosti a sypnej hmotnosti (ISO 9161: 2019)**	**STN EN ISO 9161** 40 1022

Uranium dioxide powder - Determination of apparent density and tap density (ISO 9161:2019)

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. 07/21

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 9161

February 2021

ICS 27.120.30

English Version

Uranium dioxide powder - Determination of apparent density and tap density (ISO 9161:2019)

Poudre de dioxyde d'uranium - Détermination de la masse volumique apparente et de la masse volumique après tassement (ISO 9161:2019)

This European Standard was approved by CEN on 18 January 2021.

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European foreword

The text of ISO 9161:2019 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 9161:2021 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of an identical text or by endorsement, at the latest by August 2021, and conflicting national standards shall be withdrawn at the latest by August 2021.

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Endorsement notice

The text of ISO 9161:2019 has been approved by CEN as EN ISO 9161:2021 without any modification.

INTERNATIONAL STANDARD

ISO 9161

Second edition
2019-02

Uranium dioxide powder — Determination of apparent density and tap density

Poudre de dioxyde d'uranium — Détermination de la masse volumique apparente et de la masse volumique après tassement

Reference number
ISO 9161:2019(E)

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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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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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.

This document 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 9161:2004), which has been technically revised.

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

— an introduction has been added;

— definitions in Clause 3 have been updated;

— safety precautions have been updated.

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.

Introduction

Uranium dioxide (UO_2) powder is the source material for the manufacture of nuclear fuel as pellets, and is produced for use in nuclear reactors by a variety of processes. Specifications for UO_2 powder used in the production of sintered pellets as a nuclear fuel are given in standards such as ASTM C753[5] or specifications supplied by the user. These specifications can include requirements for apparent (or bulk) density, tap density, or both.

This document specifies a method for determination of the apparent density and tap density of free-flowing UO_2 powder, and can be used for a variety of powder types. The method can also be applied to other fuel powders, and to powder mixtures, to demonstrate compliance with appropriate specifications for those powders.

It has been assumed in the preparation of this document that the execution of its provisions and the interpretation of the results obtained are entrusted to appropriately qualified and experienced people.

INTERNATIONAL STANDARD **ISO 9161:2019(E)**

Uranium dioxide powder — Determination of apparent density and tap density

1 Scope

This document specifies a method of determining the apparent density and tap density of free-flowing uranium dioxide (UO_2) powder which will be used for pelleting and sintering of UO_2 pellets as a nuclear fuel.

This method can be used for different UO_2 powder types including grains, granules, spheres or other kinds of particles. The method can also be applied to other fuel powders as PuO_2, ThO_2 and powder mixtures as UO_2-PuO_2 and UO_2-Gd_2O_3.

This document is based on the principle of using a flowmeter funnel (see 4.1). Other measurement apparatus, such as a Scott volumeter, can also be used.

2 Normative references

There are no normative references in this document.

