

<b>STN</b>	<b>Referenčné materiály</b> <b>Požiadavky a odporúčania na používanie</b>	<b>STN</b> <b>ISO 33403</b>  01 2802
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Reference materials  
Requirements and recommendations for use

Matériaux de référence  
Exigences et recommandations pour l'utilisation

Referenzmaterialien  
Anforderungen und Empfehlungen für die Verwendung

Táto slovenská technická norma obsahuje anglickú verziu medzinárodnej normy ISO 33403: 2024 a má postavenie oficiálnej verzie.

This Slovak standard includes the English version of the International Standard ISO 33403: 2024 and has the status of the official version.

**141366**

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Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2025  
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.

## Anotácia

Tento dokument opisuje osvedčenú prax pri používaní referenčných materiálov (RM), osobitne certifikovaných referenčných materiálov, v postupoch merania. Tieto používania zahŕňajú:

- posúdenie presnosti a správnosti metód merania;
- kontrolu kvality;
- priradovanie hodnôt k materiálom;
- kalibráciu;
- ustanovenie konvenčných stupníc.

Tento dokument tiež spája kľúčové charakteristiky rôznych typov RM s rôznymi aplikáciami.

Príprava RM na kalibráciu je tiež súčasťou predmetu noriem ISO 17034 a ISO 33405. Opis osvedčenej praxe je v tomto dokumente obmedzený na základy prípravy RM v malom rozsahu a základy priradovania hodnôt, ktoré laboratória používajú na kalibráciu svojich zariadení. Výroba RM vo väčšom rozsahu s možným cieľom ich distribúcie, presahuje predmet tohto dokumentu. Tento typ činnosti je zahrnutý v normách ISO 17034 a ISO 33405.

## Národný predhovor

### Normatívne referenčné dokumenty

Na nasledujúce dokumenty sa odkazuje v texte takým spôsobom, že časť ich obsahu alebo celý obsah predstavuje požiadavky tohto dokumentu. Pri datovaných odkazoch sa používa len citované vydanie. Pri nedatovaných odkazoch sa používa najnovšie vydanie citovaného dokumentu (vrátane akýchkoľvek zmien).

POZNÁMKA 1. – Ak bola medzinárodná publikácia zmenená spoločnými modifikáciami, čo je indikované označením (mod), použije sa príslušná EN/HD.

POZNÁMKA 2. – Aktuálne informácie o platných a zrušených STN a TNI možno získať na webovom sídle [www.unms.sk](http://www.unms.sk).

ISO Guide 30 dosiaľ neprijatý

ISO/IEC Guide 99 prijatý s modifikáciami ako STN 01 0115: 2011 Terminológia v metrológii, ktorá bola zrušená a nahradená STN 01 0115: 2022

### Vypracovanie

**Spracovateľ:** Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, Bratislava

**Technická komisia:** TK 110 Metrológia

## ISO 33403:2024(en)

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**ISO 33403:2024(en)****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).

This document was prepared by Technical Committee ISO/TC 334, *Reference materials*.

This first edition cancels and replaces ISO Guide 33:2015, which has been technically revised.

The main changes are as follows:

- title modified;
- 1.5 removed;
- 5.3 and 5.4 removed;
- [Figure 1](#) revised and explanation inserted;
- [6.1.4](#): former [Annex A](#) Table A.1 inserted as [Table 1](#);
- [9.1.3](#) removed;
- [9.2.1](#) revised;
- [9.3.1](#) and [9.3.2](#) revised and merged into [9.3.1](#)
- [10.2.1](#) moved to [10.1.1](#) and former [10.1.1](#). added as [10.1.2](#);
- [12.2](#) and [12.3](#) moved into the new [Annex C](#);
- former [Annex B](#) now [Annex A](#);
- former [Annex C](#) now [Annex B](#);
- Bibliography 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).

**ISO 33403:2024(en)****Introduction**

This document provides general recommendations on the use of reference materials (RMs). These recommendations are exemplified by real-world examples, which to some degree also reflect the level of complexity associated with RMs. This level of detail is deemed to be useful for users of RMs and anyone who has a responsibility in the quality management in laboratories, e.g. drafters, reviewers, managers and assessors of procedures, working instructions and standard operating procedures.

For certified reference materials (CRMs), the metrological traceability of the property values to international scales or other measurement standards has been established. For RMs that are not CRMs, this kind of traceability of property values has often not been established. Nevertheless, these RMs can still be used for assessing parts of measurement procedures, including evaluating various levels of precision.

Mainstream applications of RMs are listed in [6.1.1](#). Not all types of RMs can be used for all indicated purposes.

# Reference materials — Requirements and recommendations for use

## 1 Scope

This document describes good practice in using reference materials (RMs), and certified reference materials (CRMs) in particular, in measurement processes. These uses include:

- the assessment of precision and trueness of measurement methods;
- quality control;
- assigning values to materials;
- calibration;
- establishing conventional scales.

This document also relates key characteristics of various types of RMs to the different applications.

The preparation of RMs for calibration is also part of the scope of ISO 17034 and ISO 33405. The treatment in this document is limited to the fundamentals of small-scale preparation of RMs and the value assignment, as used by laboratories to calibrate their equipment. Larger scale production of such RMs, with the possible aim of distribution, is beyond the scope of this document. This type of activity is covered in ISO 17034 and ISO 33405.

## 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 Guide 30, *Reference materials — Selected terms and definitions*

ISO/IEC Guide 99, *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**