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STN	**Analýza plynov Príprava kalibračných plynných zmesí dynamickými metódami Časť 7: Tepelné regulátory hmotnostného toku (ISO 6145-7: 2018)**	**STN EN ISO 6145-7** 38 5615

Gas analysis - Preparation of calibration gas mixtures using dynamic methods - Part 7: Thermal mass-flow controllers (ISO 6145-7:2018)

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. 05/19

Obsahuje: EN ISO 6145-7:2018, ISO 6145-7:2018

Oznámením tejto normy sa ruší
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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN ISO 6145-7

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Supersedes EN ISO 6145-7:2010

English Version

Gas analysis - Preparation of calibration gas mixtures using dynamic methods - Part 7: Thermal mass-flow controllers (ISO 6145-7:2018)

Analyse des gaz - Préparation des mélanges de gaz pour étalonnage à l'aide de méthodes dynamiques - Partie 7: Régulateurs thermiques de débit massique (ISO 6145-7:2018)

Gasanalyse - Herstellung von Kalibriergasgemischen mit Hilfe von dynamisch-volumetrischen Verfahren - Teil 7: Thermische Massendurchflussregler (ISO 6145-7:2018)

This European Standard was approved by CEN on 16 October 2018.

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

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European foreword

This document (EN ISO 6145-7:2018) has been prepared by Technical Committee ISO/TC 158 "Analysis of gases" in collaboration with CCMC.

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of an identical text or by endorsement, at the latest by June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

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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According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 6145-7:2018 has been approved by CEN as EN ISO 6145-7:2018 without any modification.

INTERNATIONAL STANDARD

ISO 6145-7

Third edition
2018-12

Gas analysis — Preparation of calibration gas mixtures using dynamic methods —

Part 7: Thermal mass-flow controllers

Analyse des gaz — Préparation des mélanges de gaz pour étalonnage à l'aide de méthodes dynamiques —

Partie 7: Régulateurs thermiques de débit massique

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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 158, *Analysis of gases*.

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.

This third edition cancels and replaces the second edition (ISO 6145-7:2009), which has been technically revised. The main changes compared to the previous edition are as follows:

— correction of some errors in the formulae in Annexes A and C;

— minor editorial corrections.

A list of all parts in the ISO 6145 series can be found on the ISO website.

INTERNATIONAL STANDARD **ISO 6145-7:2018(E)**

Gas analysis — Preparation of calibration gas mixtures using dynamic methods —

Part 7: Thermal mass-flow controllers

1 Scope

ISO 6145 is a series of documents dealing with various dynamic methods used for the preparation of calibration gas mixtures. This document specifies a method for continuous preparation of calibration gas mixtures, from nominally pure gases or gas mixtures by use of thermal mass-flow controllers. The method is applicable to preparation of mixtures of non-reacting species, i.e. those which do not react with any material of construction of the flow path in the thermal mass-flow controller or the ancillary equipment.

If this method is employed for preparation of calibration gas mixtures the optimum performance is as follows: the relative expanded measurement uncertainty U, obtained by multiplying the standard uncertainty by a coverage factor $k = 2$, is not greater than 2 %.

If pre-mixed gases are used instead of pure gases, mole fractions below 10^{-6} can be obtained. The measurement of mass flow is not absolute and the flow controller requires independent calibration.

The merits of the method are that a large quantity of the calibration gas mixture can be prepared on a continuous basis and that multi-component mixtures can be prepared as readily as binary mixtures if the appropriate number of thermal mass-flow controllers is utilized.

NOTE Gas blending systems, based upon thermal mass-flow controllers, and some including the facility of computerization and automatic control, are commercially available.

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 6143, *Gas analysis — Comparison methods for determining and checking the composition of calibration gas mixtures*

ISO 6145-1, *Gas analysis — Preparation of calibration gas mixtures using dynamic volumetric methods — Part 1: Methods of calibration*

ISO 7504, *Gas analysis — Vocabulary*

ISO 12963, *Gas analysis — Comparison methods for the determination of the composition of gas mixtures based on one- and two-point calibration*

ISO 19229, *Gas analysis — Purity analysis and the treatment of purity data*

