

**Gas analysis - Preparation of calibration gas mixtures
using dynamic volumetric methods - Part 7: Thermal
mass-flow controllers (ISO 6145-7:2009)**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 6145-7:2011 sisaldab Euroopa standardi EN ISO 6145-7:2010 ingliskeelset teksti.

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English Version

Gas analysis - Preparation of calibration gas mixtures using
dynamic volumetric methods - Part 7: Thermal mass-flow
controllers (ISO 6145-7:2009)

Analyse des gaz - Préparation des mélanges de gaz pour
étalonnage à l'aide de méthodes volumétriques
dynamiques - Partie 7: Régulateurs thermiques de débit
massique (ISO 6145-7:2009)

Gasanalyse - Herstellung von Kalibriergasgemischen mit
Hilfe von dynamisch-volumetrischen Verfahren - Teil 7:
Thermische Massendurchflussregler (ISO 6145-7:2009)

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Foreword

The text of ISO 6145-7:2009 has been prepared by Technical Committee ISO/TC 158 "Analysis of gases" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 6145-7:2010.

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of an identical text or by endorsement, at the latest by June 2011, and conflicting national standards shall be withdrawn at the latest by June 2011.

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Endorsement notice

The text of ISO 6145-7:2009 has been approved by CEN as a EN ISO 6145-7:2010 without any modification.

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

Part 7: Thermal mass-flow controllers

1 Scope

This part of ISO 6145 is one of a series of International Standards dealing with dynamic volumetric methods used for the preparation of calibration gas mixtures. This part specifies a method for continuous production of calibration gas mixtures, containing two or more components, from pure gases or other gas mixtures by use of commercially available thermal mass-flow controllers.

If this method is employed for the preparation of calibration gas mixtures, the optimum performance is as follows: the relative expanded uncertainty of measurement, U , obtained by multiplying the combined 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 gas mixture can be prepared on a continuous basis and that multicomponent 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, some including the facility of computerization and automatic control, are commercially available.

2 Normative references

The following referenced documents are indispensable for the application 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 6145-1:2003, *Gas analysis — Preparation of calibration gas mixtures using dynamic volumetric methods — Part 1: Methods of calibration*

ISO 7504, *Gas analysis — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7504 apply.