

**Gas analysis - Preparation of calibration gas mixtures
using dynamic volumetric methods - Part 5: Capillary
calibration devices (ISO 6145-5:2009)**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 6145-5:2011 sisaldab Euroopa standardi EN ISO 6145-5:2010 ingliskeelset teksti.

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English Version

Gas analysis - Preparation of calibration gas mixtures using
dynamic volumetric methods - Part 5: Capillary calibration
devices (ISO 6145-5:2009)

Analyse des gaz - Préparation des mélanges de gaz pour
étalonnage à l'aide de méthodes volumétriques
dynamiques - Partie 5: Dispositifs d'étalonnage par
capillaires (ISO 6145-5:2009)

Gasanalyse - Herstellung von Kalibriergasgemischen mit
Hilfe von dynamisch-volumetrischen Verfahren - Teil 5:
Kapillardosierer (ISO 6145-5:2009)

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Foreword

The text of ISO 6145-5:2009 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 6145-5:2010.

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of an identical text or by endorsement, at the latest by June 2011, and conflicting national standards shall be withdrawn at the latest by June 2011.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 6145-5:2009 has been approved by CEN as a EN ISO 6145-5:2010 without any modification.

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

Partie 5: Capillary calibration devices

1 Scope

This part of ISO 6145 is one of a series of International Standards dealing with the various dynamic volumetric techniques used for the preparation of calibration gas mixtures. This part specifies a method for the continuous production of calibration gas mixtures from pure gases or gas mixtures using capillary calibration devices in single or multiple combinations (gas dividers).

Single capillary systems can be used to provide gas mixtures where the minor component is in the range of volume fractions from 10^{-8} to 0,5.

The relative expanded uncertainty of this technique is less than $\pm 2\%$ ($k = 2$) relative. This application is used in industrial gas mixing panels for the production of specific gas atmospheres.

Gas dividers can be used to divide gas mixtures prepared from gases or gas mixtures into controlled proportions by volume. These devices are capable of dilutions in the range of volume fractions from 0,000 5 to 0,9 of the primary gas concentration with a relative repeatability of better than 0,5 %.

Traceability of the gas mixtures produced by a gas divider is achieved by comparison of a mixture with gas mixtures related to national or international gas standards. An example is given in Annex A.

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

3 Principle

A constant flow of gas from a capillary tube under conditions of constant pressure drop is added to a controlled flow of complementary gas. The complementary gas flow may also be derived from another capillary tube.

The appropriate capillaries are selected to give the required flows of gases into the mixing manifold. If an appropriate capillary is selected, the required flow is obtained by adjusting the pressure drop across the capillary.