

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

Part 9: Saturation method

ICS 71.040.40

National foreword

This British Standard reproduces verbatim ISO 6145-9:2001, including Technical Corrigendum 1, and implements it as the UK national standard. It supersedes BS 4559-6:1981 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PTI/15, Natural gas and gas analysis, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

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

**Part 9:
Saturation method**

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

Partie 9: Méthode par saturation



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Contents		Page
1	Scope	1
2	Normative references	1
3	Principle	1
4	Apparatus	2
5	Procedure	3
6	Uncertainty of measurement	4
 Annexes		
A	Numerical examples of estimating the relative expanded uncertainty of the volume fraction of the constituent when preparing a calibration gas mixture	6
B	Overview of vapour pressure data for various substances	9
	Bibliography.....	13

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 6145 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 6145-9 was prepared by Technical Committee ISO/TC 158, *Analysis of gases*.

This first edition of ISO 6145-9 cancels and replaces ISO 6147:1979 which specified the same type of method. In comparison to ISO 6147, this part of ISO 6145 gives more detailed information about the use of the apparatus and it specifies the method for evaluating the measurement uncertainty of the calibration methods and techniques as well as the overall relative expanded uncertainty.

ISO 6145 consists of the following parts, under the general title *Gas analysis — Preparation of calibration gas mixtures using dynamic volumetric methods*:

- *Part 1: Methods of calibration*
- *Part 2: Volumetric pumps*
- *Part 4: Continuous injection method*
- *Part 5: Capillary calibration devices*
- *Part 6: Critical orifices*
- *Part 7: Thermal mass-flow controllers*
- *Part 9: Saturation method*
- *Part 10: Permeation method*

Diffusion will be the subject of a future part 8 to ISO 6145. Part 3 to ISO 6145, entitled *Periodic injections into a flowing stream*, has been withdrawn.

Annexes A and B form a normative part of this part of ISO 6145.

Introduction

Easily condensable gases and vapours are subject to surface adsorption, and it is difficult to prepare calibration gas mixtures containing these components by means of static methods. Moreover, these calibration gas mixtures cannot be kept under pressure near the saturation limit without condensation taking place. The saturation method can be employed in such cases.

This part of ISO 6145 is one of a series of standards dealing with the various dynamic volumetric methods used for the preparation of calibration gas mixtures.

In contrast to the methods presented in the other parts of ISO 6145, the method described in this part does not call for accurate measurement of flow rates since flow rates do not appear in the equations for calculation of the volume fraction.