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Gas analysis — Preparation of calibration gas mixtures —

Part 1: Gravimetric method for Class I mixtures

*Analyse des gaz — Préparation des mélanges de gaz pour
étalonnage —*

Partie 1: Méthode gravimétrique pour les mélanges de Classe I



Reference number
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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.

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 158, *Analysis of gases*.

This first edition of ISO 6142-1 cancels and replaces ISO 6142:2001, which has been technically revised to update the methods of preparation, estimation of the uncertainty, and validation of the composition of gravimetrically prepared calibration gases. It also incorporates the Amendment ISO 6142:2001/Amd.1:2009.

ISO 6142 consists of the following parts, under the general title *Gas analysis — Preparation of calibration gas mixtures*:

— *Part 1: Gravimetric method for Class I mixtures*

A future part dealing with gravimetric method for Class II mixtures.

Introduction

The revision of ISO 6142 was initiated to provide better guidance to the users of this International Standard especially with respect to quality assurance measures and laboratory accreditation. In preparing the revision, it was decided to make accommodation for two types of calibration gas mixtures with different levels of quality assurance and with different levels of measurement uncertainty. The difference in the two classes can be summarized as follows:

Class I type calibration gas mixtures are prepared in accordance with this part of ISO 6142. The mixtures are individually verified. Provided rigorous and comprehensive quality assurance and quality control procedures are adopted during the preparation and verification of these mixtures, uncertainties may be achieved that are substantially smaller than by any other preparation method.

Class II type calibration gas mixtures are prepared in a similar manner to Class I calibration gas mixtures but these mixtures are not individually verified. Verification of Class II calibration gas mixtures can be based on random verification checks. These checks are monitored by means of statistical quality control to be described in a future part. For mixtures containing identical compounds and nominally identical amount-of-substance fractions, Class II type calibration gas mixtures will always have amount-of-substance fractions with larger uncertainties than their Class I counterparts.