
International Standard



6141

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Gas analysis — Calibration gas mixtures — Certificate of mixture preparation

Analyse des gaz — Mélanges de gaz pour étalonnage — Certificat de préparation du mélange

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6141 was prepared by Technical Committee ISO/TC 158, *Analysis of gases*.

ISO 6141 was first published in 1979. This second edition cancels and replaces the first edition, clause 2 of the previous edition having been technically revised.

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Gas analysis — Calibration gas mixtures — Certificate of mixture preparation

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1 Scope and field of application

This International Standard gives a list of all the criteria required to define a gas mixture supplied under pressure in a cylinder and to be used for calibration purposes. These criteria shall be declared by the producer of the gas mixture.

The producer of the gas mixture for calibration shall supply two copies of the list of these criteria:

- a) in the form of a certificate delivered at the same time as the invoice for the corresponding gas cylinder;
- b) in the form of a label attached to, or fixed on, the gas cylinder.

2 References

ISO 6143, *Gas analysis — Determination of composition of calibration gas mixtures — Comparison methods.*

ISO 6711, *Gas analysis — Checking of calibration gas mixtures by a comparison method.*

3 Definition of gas mixture for calibration

A gas mixture for calibration shall be defined by all the following criteria:

- the method of mixture preparation;
- the concentrations (mass ratio, volume ratio or mole ratio), with the symbols used to express them;
- the estimated accuracy, in relative terms, for every constituent (the value mentioned shall be deduced from an error computation taking account of all the error sources corresponding to the preparation method used).¹⁾ Those accuracies are given for the prescribed period of use of the mixture. After a period of use relatively long compared to the prescribed period, it is possible to check this mixture according to ISO 6711;
- the parameters involved in the accuracy calculation;
- the original pressure of the mixture;
- the minimum utilization pressure;
- the minimum storage temperature;
- the period of time the mixture can be kept: date of preparation and limiting guarantee date;
- the possible presence of toxic components.

Furthermore, a warning should be given if the mixture is liable to be flammable or explosive when mixed with air.

¹⁾ These figures pertain to analytical data only when the preparation method used is the comparison method specified in ISO 6143.

4 Example of certificate of preparation of a gas mixture

A typical certificate of preparation is given below; however, any other type of certificate may be used provided that it contains all the criteria mentioned in clause 3.

Calibration mixture		Cylinder No. : Producer's name:	
Method of preparation:	Concentration C expressed in terms of mass ratio* volume ratio* mole ratio*		Relative accuracy $\left(\frac{\Delta C}{C}\right)$ Ref.: ISO Standard
Components	C in % Special guarantees ¹⁾		
For calibration			
Complement ²⁾			
— Filling pressure: https://standards.iteh.ai/catalog/standards/sist/d424f1c5-f566-4b29-b68-4e8d695d29f2/iso-6141-1984		Toxic component: YES* NO*	
— Minimum utilization pressure:		Flammable mixture: YES* NO*	
— Minimum storage temperature:			
— Preparation date:		Guarantee expires on:	
* Cross out what does not apply. 1) This column should be completed only upon request and should give the concentration of impurities which are present in the different components of the mixture and which might be troublesome to the user. 2) Where the mixture consists of two components in about equal proportion, for example, 49 % and 51 %, these two components will appear under the title "For calibration" and there will be no entry under "Complement".			