



**Specific Accreditation Criteria  
Reference Material Producers ISO 17034  
Annex**

**Reference Gas Producers**

**January 2018**



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## Reference Gas Producers

This document provides interpretative criteria and recommendations for the application of ISO 17034 for Reference Material Producers (RMP) for both applicant and accredited facilities.

Applicant and accredited facilities must also comply with ISO 17034 and the NATA ISO 17034 Standard Application Document (SAD).

The clause numbers in this document follow those of ISO 17034 *General requirements for the competence of reference material producers* but since not all clauses require interpretation the numbering may not be consecutive.

This annex details specific requirements for accreditation of reference gas producers under the following categories and subcategories of reference materials.

### **CATEGORY A      CHEMICAL COMPOSITION**

#### **A7      Reference gases**

##### **A7.1      Reference gas mixtures**

##### **A7.3      Trace volatile organic compounds**

**Note:** Accreditation to ISO/IEC 17025 for the characterisation of a gas mix is not appropriate when such a mix is to be used as reference material.

Certification of reference gas mixtures is based on two methods of characterisation:

- 1) Certified Reference Materials – produced according to ISO 6142.1:2015 *Gas analysis - Preparation of calibration gas mixtures - Part 1: Gravimetric method for Class I mixtures*;

**Note:** 'Certified Reference Material' is a primary type reference gas that can be produced using gravimetric techniques with analytical verification of the composition values in accordance with ISO 6142.1. Traceability for these types of gases is to the amount of substance contained within. A number of guidelines relating to the production, maintenance and distribution of reference gases are available in ISO 6142.1:2015 *Gas analysis - Preparation of calibration gas mixtures - Part 1: Gravimetric method for Class I mixtures*.

- 2) Certified Reference Materials – certified by analytical methods.

**Note:** In general, gas standards (sold mostly as calibration gases to testing facilities) are produced by decanting a series of pure gases into a cylinder to make a mixture. This production process can be done using a combination of hydrostatic (pressure) and gravimetric techniques. The decanted cylinder is tested using gas chromatography and gas analyser instruments/techniques for determining the assigned value. Instruments need to be calibrated using a certified reference gas, prior to performing characterisation steps.

The clause numbers in this section follow those of ISO 17034 but since not all clauses require interpretation the numbering may not be consecutive.

### **6.3      Provision of equipment, services and supplies**

**6.3.2** The constituents of gas mixtures must be reconfirmed if the mixtures have not been received from one of the following:

- a facility accredited to ISO 17034 by an accreditation body recognised by NATA under one of the regional mutual recognition arrangements (MRA) e.g. Asia Pacific Laboratory Accreditation Cooperation (APLAC) MRA;
- Australia's National Measurement Institute (NMI) or a national metrology institute that is a signatory to the Comité International des Poids et Mesures (CIPM) MRA.

**Note:** Refer to NATA's *Metrological Traceability*.

## **7.11 Assessment and monitoring of stability**

**7.11.2** A history of the assigned property values for different types of reference mixtures can be used to determine the stability of the gas mixture. The knowledge of previously determined measurements for specific gas mixtures and concentrations will assist in establishing long term and short term stability periods.

## **7.14 RM documents and labels**

**7.14.2** For each reference mixture held by the facility, the following details, as a minimum, must be available:

- constituents of the mixture;
- date produced;
- confirmation procedures used;
- regulatory conditions applying to the gas mixture and its storage.

**Note:** ISO 6141:2015 *Gas Analysis - Contents of Certificates for Calibration gas Mixtures* provides additional guidance on the contents of certificates.

## References

This section lists publications referenced in this document. The year of publication is not included as it is expected that only current versions of the references shall be used.

### Standards

ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
ISO 6141	Gas Analysis - Contents of Certificates for Calibration gas Mixtures
ISO 6142.1	Gas analysis - Preparation of calibration gas mixtures - Part 1: Gravimetric method for Class I mixtures

## Amendment Table

The table below provides a summary of changes made to the document with this issue.

AMENDMENT TABLE	
Section or Title	Amendment
New document	<p>This document represents a direct adoption of the former Reference Material Producers ISO 17034 Standard Application Document Appendix B.</p> <p>The document has been reviewed and updated to reflect the new accreditation criteria documentation structure.</p>